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ABSTRACT

The report reviews the implementation of computer programs in special education in the District of Columbia Public Schools (DCPS) and describes specific applications at the Prospect Learning Center, a special elementary school for moderately to severely learning disabled students. Goals for a 3-year project on computers in DCPS are listed. A brief overview of the goals and objectives of the Prospect Learning Center is followed by extensive samples of handouts distributed by the school on learning disabilities and Individualized Education Programs as well as the program instructional guide. The Center's computer program for school year 1984-85 is detailed in terms of four model components (awareness development, instruction, staff development, and parents) and the operational plan. Also included are a software review checklist, a journal review checklist, and bibliographies. (CL)

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D. C. Public Schools
Computer Technology in Special Education
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1984

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ABSTRACT

The internship was completed at the Prospect Learning Center at 34th and Prospect Street, N.W., Washington, D.C. from May 21, 1984 until the end of the school year. The goal of the internship was for the intern to observe computer applications in the District of Columbia Public School System. The intern used data collection procedures to formulate a perception of the state of the art of applications and to hypothesize other possible areas of computer applications.

The outline and narrative, as presented, speaks to the thrust of the District of Columbia Public School System's computer application program from the viewpoint of the Prospect Learning Center's major program implementer and the state of the art implementation plan. Future plans and directions call for more student interfacing with the computers, a goal students and staff seem to look forward to.

The internship consisted of daily observations, interviews and questionnaires completed with and by staff members, a literature search on computer applications in special education and a 1984-1985 implementation plan.

PREFACE

I wish to formally thank the many people in the District of Columbia Public School system's Special Education Division for providing me the opportunity to complete the internship with the seasoned professionals at the Prospect Learning Center. A special thank you to Dr. Doris Woodson who was so open, available and willing to assist me in my goal of seeing how computers are being implemented for special education classes. Dr. Burkette, Dr. Johnson and Ms. Rutins also assisted in the fruition of this internship.

The Prospect Learning Center staff, under the superb administrative direction of Mrs. Azalee Harrison, Principal, allowed me to poke, pry and question in a trusting, caring way. I especially wish to thank Mrs. Anna Williams, Resource Teacher, who is spearheading the Prospect Learning Center's computer implementation plan for her assistance, guidance and daily direction. Mrs. Lillian Butler, the art teacher at the Prospect Learning Center, deserves special thanks for her wonderful computer graphics and activities which promote cognitive skill development in the many learning disabled students she works with. Mrs. Williams and Mrs. Butler exemplify the creativity, initiative and imagination that are called for as we look to the utilization of computers with special needs populations. A special note of thanks to Dr. Michael Castleberry and Dr. Linda Tsantis, my advisors at George Washington University who allowed me the freedom I needed to grow in this internship.

I. INTRODUCTION

Computer technology is here. Large and small businesses have implemented computerized accounting systems. mailing lists, payroll systems and employee demographic systems. Consumers are faced with computerized banking services and telecommunications systems which provide access to several different agencies. As world citizens of tomorrow, public school children of today are faced with a world that is constantly changing. Management information systems, computers and robots of today are being placed in almost every societal institution. Public school children are faced with the challenge of preparing for the information age. Within this background, the District of Columbia Public School system has included computer technology in its long range planning in order to prepare area citizens with skills for the worlds of today and tomorrow. The technology is being applied in special education as well as in regular education. The excitement of increased accessibility for the handicapped as well as novel learning strategies has led to increased emphasis on technology in this city's schools.

Discussions on educational programs that prepare students for the future speak to the increased involvement of technology in daily life. The home, work and school have changed dramatically due to technological advances. Telecommunications systems link worldwide organizations. Computers access people to their banks from their homes. Management information systems is a business application which includes the new hardware to efficiently handle the increased knowledge generated by technological systems. The space program, underwater exploration and weather forecasting have greatly benefitted from these technological advances.

The Commission on Excellence in A Nation At Risk speaks to the mediocre state of American education at a time when excellence is called for. The school children of today are being prepared for this technological age by teachers who graduated in the bottom 1/3 of their classes. There is a shortage of science and mathematics teachers. The Commission strongly recommends computer literacy for children as a part of the New Basics program. In addition to the Commission on Excellence in Education's recommended curriculum changes are those of Mortimer Adler. In the Padeia Proposal, Mortimer Adler speaks to the need for the inclusion of computer technology in the curriculum.

Public schools are examining the opinions of the experts and are looking for ways to include these recommendations into the existing curriculum to provide children with optimal learning. The District of Columbia Public School system has acted on the challenge of the technology and has instituted a five year computer implementation plan. Computer training workshops and useage for special educators as well as for regular educators is made available through the Office of Instruction, Computer Literacy Training Laboratory, Takoma School. The training of special educators is particularly critical to the success of the overall system. It is the special educator who works with the nuances of individual children in a structured learning setting. It is the special educator, who, through this one-to-one relationship, is able to adapt the program for the individual child. It is the special educator who is able to find new approaches to learning through using the IEP and is able to sequentially analyze each student's strengths and weaknesses and use each student's strengths to build a substantive and meaningful learning plan. The special educator who works with a variety of categories of students will find the new technology helpful. Computers allow students to process the information for as long as it takes the student. The computer shows no negative emotive responses to clients who work slowly. The unboundless patience of the computer is coupled with the ability to break concepts down into concrete, distinct units that can be mastered before moving on to the next sequential step. The learner works at his/her own rate. The learner, with a puff of air or minor movement of special adaptive equipment, can communicate with others and have their needs better met. The modem attachments to telephones and computer can provide access to other handicapped people, mail service, special and emergency services. Technological systems allow for independent living. With computer, the home bound can work at home, bank at home and communicate with others.

Monte Burns and Laura Swearingen wrote A Justification for Use of Computer Assisted Instruction with the Physically Handicapped in 1983. Burns and Swearingen concluded that student attitudes improved with computer assisted instruction. The computer assisted instruction retention rate was equivalent to the retention rate of traditional teacher methods. There was less paperwork for the instructors and it took less time for the student to master the task. The computer, in this study, was used to aid communication, assist with calculations and achieve more interaction with the environment.

Monte M. Burns also presented a paper on "Alternate Interface Devices for the Physically Handicapped" in March of 1983 at the National Conference on the Use of Micro-Computers in Special Education. He described the following interface devices for the physically handicapped: the Time Delay Keyboard; Keyguard; Magic Keyboard; Presfax-100 Touch Key Pad; Switches (single and multiple) and the Optical Printer. He concluded that all of the devices are effective.

These and other researchers concluded that technology, when applied to special education, is extremely beneficial. Proponents would argue that:

(a) technology can be a positive motivator for youngsters;

(b) technology (CAI) frees the teacher's time;

(c) computers can be used for computer assisted instruction, computer managed instruction, and recording keeping;

(d) improved self concept of the special education student because of more mastery of the environment;

(e) improved communications systems are possible;

(f) a network system is possible with the outside world;

(g) more uniform assessment procedures are possible;

(h) more uniform service delivery plan through IEP software; and,

(i) more accountability.

The District of Columbia Public School system has included special educators in the district-wide plan for training and implementation. In this respect, the District of Columbia Public School (DCPS) system has resolved the equity issue which some other districts have not. Too frequently, computer technology expertise is accessed to the gifted rather than the school as a whole or the special needs population. The District of Columbia Public School system has made available to its special educators the same training workshops that are available to all educators within the system. Indeed, the Prospect Learning Center's Principal and Resource Teacher (Computer Coordinator) have participated in the workshops, made staff training available and have earmarked the development of the computer program at the school as a high priority.

A. D.C. Public Schools' Plan for Implementation of Computer Program

In order to disseminate knowledge and information on computer usage and to encourage implementation of new technological strategies, the Division of Special Education and Pupil Personnel Services wrote a proposal for a three year training grant. The training program called the Computer Literacy Training Program is designed to provide in-service training to at least sixty (60) resource personnel from the District of Columbia Public Schools, the Department of Human Services, St. Elizabeth's Hospital, Department of Corrections and other city agencies. The training modes of instruction are simulation, demonstrations, practicum and seminars. Topics covered include the following:

- Principles of curriculum development;
- Evaluating and adapting instructional media and materials for use with handicapped students;

- Writing programmed instruction modules for traditional and programmable media;
- Classroom uses of interactive cable television;
- Video disc and video tape utilizations with handicapped students;
- Principles of computer programming;
- Use of computer authoring languages;
- Computer assisted devices such as versabraille, voice synthesizers, etc.[1]

The sixty trained personnel will each train at least ten other persons to disseminate the training experience to at least 600 other people.

The District of Columbia Public Schools (DCPS) Computer Literacy Laboratory through the Office of Instruction, Computer Literacy Training Laboratory at the Takoma School, provided Programmatic Guidelines for the Computer Literacy Laboratory to the Prospect Learning Center and each of the other four special education schools, 2 adult education centers and fifty-four schools at the secondary level.[2]

The five year DCPS plan began in the 1983-1984 school years. During the first year, the District-wide goal was awareness of computer systems. Specific objectives designed to meet the goals of awareness are:

- To develop student knowledge of computer concepts and personal and social impacts of computers;
- To develop student skills in evaluating the advantages and disadvantages of using computers for selected applications;
- To develop student ability to utilize the computer as an instructional medium in the acquisition of subject-area skills;
- To develop student skills in using the computer as an instrument for analysis and for problem solving;
- To develop increased student independence in the learning process, utilizing computer assisted instruction;
- To integrate the computer into the existing curriculum;

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[1] Program Narrative Abstract, pp. 7-8.

[2] Programmatic Guidelines for Computer Literacy Laboratory, DCPS, October 1983.

- To develop the technical expertise of administrators, supervisors, and teachers in operating computers in the laboratory;
- To meet the needs of subject area teachers in the integration of the computer experiences into classroom instruction in their respective subject areas;
- To train students how to operate and use computers through instructional courseware that includes tutorial, simulation, and problem solving strategies.[3]

According to the Guidelines[4], the Principal and Educational Technology Resource Teacher are responsible for program implementation. The principal is responsible for computer lab scheduling, the security of the equipment and for arranging time for the Educational Resources Teacher to attend the Computer Literacy Training Laboratory. The Educational Technology Resource Teacher recommends to the principal supplies and software to be purchased. In addition, the Technology Resource Teacher establishes a software literacy, assists teachers and administrators by demonstrating software/courseware and providing guidance in appropriate courses for students.[5]

The guidelines for selecting the Educational Technology Resources Teacher specify that the person selected:

- Complete 50 hours of BASIC or its equivalent.
- Demonstrate proficiency in one computer language.
- Attend workshops, training sessions and implement the Computer Literacy Laboratory.
- Have demonstrated organizational, management and interpersonal skills with teachers and students.
- Be willing to plan, design, develop and conduct in-service training for teachers and/or students.
- Have knowledge of the DCPS curriculum and DCPS Computer Literacy Five Year Plan.

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[3] Programmatic Guidelines for Computer Literacy Laboratory, DCPS, October 1983, p. 3.
[4] IBID, p. 4.
[5] IBID, p. 6.

- Be experienced in conducting staff development.
- Have technical expertise (install a microcomputer system, diagnose microcomputer system malfunctions, operate a microcomputer system, install and operate microcomputer peripherals).
- Have knowledge of software selection procedures.
- Willingness for assignment to any DCPS that has grades 7-9.[6]

The District of Columbia Public School system wrote for and received a grant for the implementation of a three year project on computers.

The specific goals for the three year project are:

YEAR ONE: 1983-1984 - SKILL ACQUISITION

Sixty resource personnel will acquire skills and start planning with schools and agencies. Two courses were taught during the 1983-1984 school year: Basic Computer Literacy: Programming in BASIC for Teachers of Handicapped Children and Youth and Principles of Instructional Materials Development and Adaptation for the Handicapped: Writing Programmed Appropriate Education Plans and Designing Individual Assessment.

The classes were held in two sections. Section 1 (30 people) met Wednesdays from 4:00-7:00 p.m. from October 12, 1983 to February 1, 1984. Section 2 (30 people) met Thursday from 4:00-7:00 p.m. from October 12, 1983 to February 9, 1984. Classes for both sections were held at the DCPS Computer Literacy Training Laboratory at the Takoma Elementary School on Piney Branch Road and Dahlia Street, N.W., Washington, DC. The Orientation, at which time project staff discussed the goals, activities and commitments to the program, was held at the Logan School at 3rd and G Street, N.W., at 4:00 p.m.

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[6] Programmatic Guidelines for Computer Literacy Laboratory, DCPS, October 1983, p. 7.

YEAR TWO: 1984-1985 - TRAINING OTHER PERSONNEL

Sixty resource people will train ten other people at home agency during the second semester. Implementation program planned throughout the year. Two courses will be taught during the 1984-1985 school year: Developing Instructional Strategies for Teaching Computer Literacy to Adults in Programming for Handicapped Students and Computer Programming in Different Languages: To give the special educator the advantage of programming flexibility.

YEAR THREE: 1985-1986 - NETWORK SYSTEM

Sixty resource people will develop network systems between D.C. Agencies. Three courses will be taught during the 1985-1986 school year. The first courses using Programmed Instructional and Management Materials as an Interactive Learning Systems for those with special needs.

a) Programming for the Severely Handicapped Student: Adaptive Techniques;

b) Development of CAI and CMI Program for the School/Agency/Teacher;

c) Data Base Management in School/Agency; and

d) Test Taking: Assessment Management Programs.

The second course is a seminar in educational technology; Management Strategies for Operation of Computer Literacy Programs, CAI and CMI. The third course is a seminar in educational technology: Management strategies for Operation of Computer Literacy Programs, CAI and CMI.

The project is designed to teach and apply knowledge of computers and technology in the field of special education. The design allows time for skills development, practice and thought on innovative applications which allow for the maximum in student growth. Each course is evaluated by participants. Evaluations are stored for future course revisions.

In determining the ways the computer can be implemented within the system, the implementers are aware of the curriculum goals and objectives. Foundations, D.C. Public Schools, is the instructional guide for the District. The Prospect Learning Center's instructional program, like other programs in the District, is determined and guided by the Competency Based Curriculum Guide Foundations. The organization of the program is based on the following strands and substrands:

Stand 1: Auditory Perception

Substrands:
1. Closure
2. Discrimination
3. Figure Ground
4. Focusing and Attending
5. Memory
6. Tracking

Strand 2: Visual Perception

Substrands:
1. Attending
2. Closure
3. Figure Ground
4. Memory
5. Tracking
6. Visual Discrimination
7. Visual Motor

Strand 3: Perception Motor

Substrands:
1. Balancing Skills
2. Directionality
3. Laterality
4. Locomotor Movements
5. Manipulating and Receiving Objects

Strand 4: Oral Language

Substrands: 1. Alternative Modes of Communication
2. Expressive
3. Receptive

Strand 5: Functional Living

Substrands: 1. Awareness
2. Dressing
3. Eating
4. Grooming
5. Toileting
6. Social Skills

The curriculum guide provides goals, objectives, activities and evaluation checklists which clearly spell out the skills to be attained within each strand. Levels are given for each activity to be achieved. Auditory perception is covered in the first 138 pages. Visual perception is discussed from pages 139-291. Perceptual motor perception is included on pages 292-369. Oral language is covered on pages 370-564. The functional living component is on pages 565-893. The glossary and bibliography at the end of the Competency Based Curriculum Guide: Foundations provided each teacher with working definitions of terms and a list of books that guided philosophy and development of the district wide curriculum.

Although the Competency Based Curriculum Guide: Foundations preceded the District-wide computer program, the two are not mutually exclusive. Indeed, the computer program can complement and enhance the curriculum. This section is included as a reminder of the overall model development within the context of the approved curriculum.

B. D.C. Public Schools Glossary of Terms

From the Competency Based Curriculum Guide Foundation pages 894-898.

action verbs	The nine verbs are: name, identify, state a rule, order, distinguish, construct, describe, demonstrate, apply a rule.
apply a rule	synonyms are: use a formula, apply a law.
assessment tasks	A measurement of student performance against specific criteria which are stated in behavioral objectives.
attending	The ability to recognize and concentrate on stimuli for a period of time
auditory perception	The ability to receive sounds or spoken words through the ears and its pathway and to process that information through the cranial nerves for interpretation.
attention span	The length of time focusing on a task can be sustained.
balancing skills	The ability of the child to sustain control of his body when using both sides simultaneously, individually or alternately with minimal contact with a surface. There are three kinds of balance - static, dynamic and object.
behavioral objective	Statements of expected student performance which include: a description of the target audience, action verb (what the student is to do), conditions under which the action is to be done, and criteria of performance.
category	A subdivision of a strand or competency area which identifies the content in which the skill is being used. (For example, tracking, attending, closure.)
competency	The demonstrated ability of an individual to perform a task at a required or specified level of proficiency.
competency area	The strand or area of skill mastery for success in life-role activities. (For example, auditory perception, visual perception, perceptual motor.)
construct	Synonyms are: to build, to compose, to draw, to make, to find a sum.
cruise	The action of moving from object to object by holding on to each object encountered for support.
cue	Additional stimuli presented to the student to elicit the desired behavior.

demonstrate	Synonyms are: to show, to perform a sequence.
describe	Synonyms are: to convey properties or characteristics of, to give examples of, to explain, to tell why.
developmental approach	The use of normal human growth patterns as guidelines in the sequential teaching of skills.
directionality	The ability to know right from left, up from down, forward from backward, and directional orientation in the space about the student.
distinguish	Synonyms are: to determine the difference, to discriminate.
enabling objective (enabler)	The behavioral objective(s) which when completed provide success for the terminal.
entry level	The student's instructional level based on pre-assessment; the next level after the one on which the student demonstrates non-mastery.
expressive language	Words or symbols used to communicate thoughts, feelings, ideas, actions, etc.
fading	The process of gradually withdrawing a prompt or help given to the student that leads to his independence in the performance of a given task.
figure ground	Visual ability to see objects and separate them from their background. Auditory ability to listen to sounds without being distracted by environmental sounds.
hierarchy	A pictorial sequence of objectives, arranged from simple to complex, into a series of instructional systems which, when mastered in sequence, lead to the mastery of a specific terminal skill.
identify	Synonyms are: to mark, match, select, point out, locate or pick up.
informal objective	The restatement of the formal objective so that students are able to understand what behavior is expected.
instructional activities	Those activities which enable the student to master the objective.
instructional triad	A single instructional system, consisting of one behavioral objective, two learning activities, and three assessment tasks which are all in performance agreement.

laterality	An internal awareness of a right-and-left side of the body.
locomotor movements	Activities which move the body through space in definite patterns, such as running, skipping, jumping, etc.
manipulation	Purposeful movement of objects with hands.
mastery	In an ideal situation, 80% of the students should master all three assessment tasks.
midline	The unseen, vertical plan bisecting the right-and-left sides of the body.
motoric skill	An act performed with a high degree of precision that is a combination of body movements serving a purpose.
name	Synonyms are: call for, label, designate, declare, announce.
object permanence	The child's realization that the object continues to exist even though it is outside the child's visual field.
order	Synonyms are: arrange, align, array, organize, systematize.
perception	The awareness derived from sensory processes when a stimulus is presented. It is a sensation or experience which is combined or integrated with previous experiences.
perceptual motor	The ability to receive, interpret and respond to sensory stimuli with meaning and understanding. It includes sensory or perceptual activity and motor or muscular activities. A total activity includes input, integration, output and feedback.
performance agreement	The condition which exists in a valid instructional triad, in that the action which is specified in the objective is taught in the activities and assessed in the assessment tasks.
prompt	Any help or cue given to the student to insure his success. A prompt may be physical (guiding his hands or body), verbal (telling him what to do), gestured (motioning or demonstrating the action), or any combination of these.
pincer grasp	The index finger and thumb opposition to pick up and object.
receptive language	The ability to understand sensory stimuli.

reinforcement	A systematic approach to either increase or decrease behavior, by the consistent application of a planned consequence.
reward	Positive feedback delivered to the student immediately following the correct response.
scope and sequence	A listing of objectives sequenced according to the stages of growth and development and levels of difficulty.
sign	A system of communication using the movement of the hands and the body.
social skills	Specific responses which are directly observable involving the self, others, and environmental activities necessary for functioning as an integral part of a larger society.
spatial fading	A process for the gradual withdrawal of a physical prompt: from moving a student's hand to complete a task (hand over hand), to guiding his wrist, to guiding his elbow, to guiding his shoulder, to no guidance.
state a rule	Synonyms are: say a formula, recite a law, tell a principle.
strand	The sequence of objectives in a given skill or competency area.
terminal objective	The last in a group of objectives arranged from simple to complex.
tracking	The ability to follow an object using the eyes.
visual perception	the sensory ability to receive, organize and interpret visual stimuli.

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From Competency Based Curriculum Guide Foundations, DCPS, pp. 899-901.

II. The Prospect Learning Center

The Prospect Learning Center (founded in 1979), formerly the Wormley School, is a special school within the administrative realm of the Division of Special Education and Pupil Personnel Services. The school is located in Georgetown on Prospect Street near 34th Street, N.W. The school provides services at the Preschool-6th grade level for diagnosed moderate to severe learning disabled students. The Center is the only one of its kind within the District of Columbia Public School System. The school is a state school. The staff consists of the principal, school psychologist, social worker, resource room teacher, art teacher, adaptive physical education teacher, language therapist, visiting dance therapist, nine classroom special education teachers and nine educational therapists. At the time of the internship, one of the educational therapists was hospitalized. The occupational therapist was unavailable this semester. A pre-school class was added this year (Sept. 1983). Each classroom teacher has from eight to twelve students in a classroom. Each classroom teacher has the assistance of an educational therapist.

The student population, as is characteristic of most LD populations, is overwhelmingly male in gender. The usual symptoms of learning disability are present: letter reversals, letter omissions, inattentiveness, and restlessness. Auditory and/or visual and/or cognitive processes are interferred with. Some youngsters cannot phase out background noises from the environment from the message. Others cannot distinguish between a "b" and a "d" in written messages. Others show mirrored writing. Others have difficulty remembering and are unable to follow simple instructions. Perception, thinking and/or memory processes may be affected. The degree and severity of the learning disability is what causes these youngsters to be selected for the state school placement. At the Prospect Center, students work with staff who are trained to teach the learning disabled. The staff training comes primarily through the principal, a master teacher who advocates, applies and teaches the diagnostic prescriptive approach to teaching. The principal shows each teacher how to assess test results, include the student in the assessment process where appropriate, and write meaningful IEP's. Indeed, the principal devised and disseminated handouts for each teacher on learning disabilities, the IEP and the Program's Instructional Guide. These handouts, included at the end of this section, can be used to clarify the goals, objectives, plan of operation and implementation of the program. As the supervisor/administrator, the principal of the Prospect Learning Center applies sound management practices which speak to the smooth functioning of the school. Staff, parents and students are secure in the schedule, show warmth and empathy and a partnership in learning. Indeed, the principal developed a very effective handout "Parents and Teachers in Partnership at Prospect" which is disseminated to all parents.

Administratively, the Prospect Learning Center is under the Automated Instructional Management System (AIMS). the AIMS system was developed by the District of Columbia Public School (DCPS) system. This is the first school system in the country to design and implement its own system. AIMS is currently being piloted by Amidon, Bryan, McGogney, Meyers, Nalle, Oyster, Shepherd and Slowes. AIMS is a telecommunications system hooked to a computer which links all offices and schools within the DCPS system. The AIMS system allows the teacher to score students' tests and maintain the results, keep a reading and mathematics checklist on each student, summarize skills mastered and produce a diagnostic report analyzing the projected reasons why some students mastered objectives.

The Prospect Learning Center initiated its own fund-raiser to purchase computer software. The initiative shown by the principal and her staff in attaining the goals is a statement as to the commitment shown in securing computer software and materials not covered in the existing school budget.

The following pages include the handouts on Learning Disabilities, IEPs, Prospect's Program Instructional Guide, the AIMS Program Fact Sheet and the "Parents and Teachers in Partnership at Prospect" handout. Mrs. Azalee Harrison, the principal, wrote the handouts and disseminated them to her staff.

PROSPECT LEARNING CENTER
WORMLEY SCHOOL

WHAT ARE LEARNING DISABILITIES?

Presently the programs for Learning Disabled children in the District of Columbia operate under the definition accepted by Congress in 1968.

I DEFINITIONS

A. Present Definition

CHILDREN WITH SPECIAL LEARNING DISABILITIES EXHIBIT A DISORDER IN ONE OR MORE OF THE BASIC PSYCHOLOGICAL PROCESSES INVOLVED IN UNDERSTANDING OR USING SPOKEN OR WRITTEN LANGUAGES. THESE MAY BE MANIFESTED IN DISORDERS OF LISTENING, THINKING, READING, WRITING, SPELLING OR ARITHMETIC. THEY INCLUDE CONDITIONS WHICH HAVE BEEN REFERRED TO AS PERCEPTUAL HANDICAPS, BRAIN INJURY, MINIMAL BRAIN DYSFUNCTION, DYSLEXIA, DEVELOPMENTAL APHASIA, ETC. THEY DO NOT INCLUDE LEARNING PROBLEMS WHICH ARE DUE PRIMARILY TO VISUAL, HEARING, OR MOTOR HANDICAPS, TO MENTAL RETARDATION, EMOTIONALLY DISTURBANCE, OR TO ENVIRONMENTAL DISADVANTAGE.

In spite of the many differences of opinions reference causes and components of the definition there are generalizations which, for educational purposes, can be made.

1. Educators must respond to the symptoms and the learning characteristics of these children rather than wait for research to identify causes.
2. Learning disabled children, who are intellectually, physically, and emotionally capable of learning and who have had the opportunity to learn, do not perform in expected ways or achieve at expected levels. This is often referred to as a "significant educational discrepancy."
3. Receptive and expressive language deficits are most noticeable in the academic areas of reading, writing, spelling, and arithmetic.
4. Learning disabilities vary from child to child according to the severity of the condition and the type of disorder that is exhibited.

The label "Learning Disabilities" is all-embracing; it describes a syndrome, not a specific child with specific problems. The definition is comprehensive; it assists in classifying children, not teaching them. Teachers need to concentrate on the individual child. They need to observe process and performance, assess strengths and weaknesses, and provide prescriptions and materials.

B. Proposed Definition

Representatives from six organizations are presently working on a new definition for learning disabilities.

> LEARNING DISABILITIES IS A GENERIC TERM THAT REFERS TO A HETEROGENEOUS GROUP OF DISORDERS MANIFESTED BY SIGNIFICANT DIFFICULTIES IN THE ACQUISITION AND USE OF LISTENING, SPEAKING, READING, WRITING, REASONING OR MATHEMATICAL ABILITIES. THESE DISORDERS ARE INTRINSIC TO THE INDIVIDUAL AND PRESUMED TO BE DUE TO CENTRAL NERVOUS SYSTEM DYSFUNCTION. EVEN THOUGH A LEARNING DISABILITY MAY OCCUR CONCOMITANTLY WITH OTHER HANDICAPPING CONDITIONS (e.g., SENSORY IMPAIRMENT, MENTAL RETARDATION, SOCIAL AND EMOTIONAL DISTURBANCE) OR ENVIRONMENTAL INFLUENCES (e.g., CULTURAL DIFFERENCES, INSUFFICIENT/INAPPROPRIATE INSTRUCTION, PSYCHOGENIC FACTORS), IT IS NOT THE DIRECT RESULT OF THOSE CONDITIONS OR INFLUENCES.

(For a detailed explanation of definitional differences, refer to Hammill, D.D., Leigh, J.E., McNutt, G., and Larsem. S.C. "A New Definition of Learning Disabilities:, LEARNING DISABILITY QUARTERLY, 1981, 4, 336-341.)

The following list of Characteristics presented at the 1982 ACLD Conference in New Orleans by Mary M Banbury, may be helpful in programming for LD students.

II CHARACTERISTICS

There is a high degree of interrelations and overlapping among the areas of learning. Consequently, learning disabled children may exhibit a combination of characteristics. This cluster of symptoms may be partially or completely manifested in one area or in conjunction with other areas. These problems may mildly, moderately, or severely impair the learning process. Although it is not likely that one student will exhibit all these disorders, it is possible that students who are not learning disabled will manifest some of these behaviors.

A. Listening Deficits

1. Cannot focus on relevant auditory stimuli; distracted by background noises;

2. cannot remember sounds or oral directions;

3. cannot understand verbal instructions or explanations;

4. cannot discriminate between similar sounds;

5. cannot learn phonics.

B. Speaking Deficits

1. problems with syntax;

2. problems with grammar;

3. problems with word retrieval;

4. problems with expressing thoughts in an organized, logical,

coherent manner.

C. Reading Deficits

1. reverses, rotates, or inverts letter or words;
2. confuses similar letters and words;
3. loses place while reading;
4. forgets sight words;
5. omits, substitutes or guesses at words;
6. unable to identify, discriminate, sequence, or blend phonetic symbols;
7. has more problems with reading comprehension than with listening comprehension.

D. Writing Deficits

1. Handwriting is characterized by reversals, inversions, rotations, by size variation, mixture of upper and lower case letters, insufficient spacing between letters and words, and inadequate letter formation.
2. Written compositions reflect a limited vocabulary, inadequate sentence structure, and deficits in syntactical and grammatical structure.
3. Spelling problems may be the result of poor auditory or visual memory, sequencing or discrimination.

E. Mathematical Deficits

1. difficulty recalling number formation and seriation, recognizing sets and groupings, and discriminating shapes and sizes;
2. difficulty in understanding spatial and temporal concepts;
3. difficulty counting, performing number operations, telling time, measuring, learning monetary values, and reading story problems.

F. Social and Behavior Deficits

1. insensitive to feelings, moods and reactions of others;
2. does not attend to verbal or nonverbal cues;
3. cannot cope with new situations;
4. low frustration level;
5. poor self-concept;

6. hyperactive or hypoactive;
7. distractible and disorganized;
8. cannot begin or stay on tasks, or is overattentive to tasks;
9. aggressive or shy and withdrawn.

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CONTENT OF THE INDIVIDUALIZED EDUCATION PROGRAM

The individualized education program formalizes the process of designing instructional experiences for a child based on that child's specific needs as identified through a comprehensive evaluation. The IEP is a management document, a written statement of decisions about the objectives, content, implementation, and evaluation of special education services for an exceptional child. The intent of the law describing the content of the written IEP (Section 602 of P.L. 94-142) is to assure appropriate and individualized programming rather than to produce a legally correct piece of paper. Therefore, both the required components and the recommended procedures for developing each component are given.

The individualized education program shall include the following:

Content	Process
1. A statement of the child's present level of educational performance, including where applicable, academic achievement, social adaptation, prevocational skills, sensory and motor skills, self-help skills and speech and language skills.	1. For a child entering a special education program for the first time the statement of present level of educational performance should summarize the comprehensive evaluation. When an IEP is being reviewed the previous level of performance should be updated based upon current formal and informal evaluation of pupil progress. The statement should provide a profile of deficits and strengths from which instructional needs can be identified and prioritized. On the basis of the child's current level of performance, areas needing special assistance or intervention should be delineated. At this point the child's needs are not stated in terms of specific special education services, but rather in terms of priority instructional or curricular emphasis. The decision as to how, where, and by whom services will be delivered may not be made prior to the time an appropriate educational program is designed.

2.	A Statement of annual goals which describe the educational performance anticipated within a year's time.	2.	The IEP is not intended to provide daily lesson plans. Annual goals are written to give program direction to those persons who will be implementing the IEP. Each goal written should be directly related to some aspect of the child's current performance which, in the opinion of the conference participants, requires some type of special intervention. The entire curriculum need not be addressed. Annual goals should focus on a group of cluster of skills in one instructional area (such as visual motor integration, language development attention to task and social functioning, visual and auditory processes and memory. The number of goals written will depend upon the type and degree of the child's exceptionality. When prioritizing the annual goals, consideration should be given to the student's functioning within the least restrictive environment.
3.	A statement of short-term objectives which are measurable intermediate steps between the present level of performance and the annual goals.	3.	The purpose of the short-term objectives which must be written for each annual goal is to provide progress check points for the IEP implementer(s). The objectives should be sequential and measurable. They serve as a guide from which lesson plans may be developed.
4.	Objective criteria, evaluation procedures, and data collection schedules for determining, at least every twelve weeks, whether the short-term objectives are being achieved.	4.	The IEP document must show how and when pupil progress toward stated objectives will be measured. It is recommended that indices of progress (or lack thereof) also be recorded on the IEP. If goals and objectives have been set too high or too low, they should be revised.

5.	A statement of the specific special education and related services needed by the child without regard to the availability of such services. Any unique instructional media not ordinarily available to students, but needed by the child for learning, shall be listed. For example, small group instruction success oriented academic program, a highly structured learning environment, consistent review of all academic skills, immediate feedback from teacher, additional visual and auditory cues, taped materials, no shift in type of test, many repititions and manipulative materials for acquiring mathematical concepts should be provided.	5.	The decision as to the type and amount of special education services must be based on the needs of the child under consideration. The intent of the IEP process is to design a program for a child, not to fit a child into an existing program. Local education agencies are legally bound to designate all of the services If, at the time the IEP is written, the local education agency cannot provide a needed service, written justification as well as a time line for making the service available shall be included.
6.	A descriptions of the extent to which the child will participate in regular education. Where regular classroom placement is not appropriate, the extent of participation in other less restrictive environment activities shall be described.	6.	Parents must be fully informed of the nature of regular class participation, but it is recommended that the extent of participation in less restrictive environments be described in percentages, days per week, or hours per week. If the child will be in a regular physical education program this should be noted.
7.	The projected date for the initiation of the prescribed services and anticipated duration of the services.	7.	Because the IEP must be reviewed/revised annually, the maximum anticipated duration of services is twelve months.
8.	A listing of the names and positions of the individuals responsible for implementation of the individualized education program		

A. Overview of Goals and Objectives of the Prospect Learning Center
(See Instructional Guide that follows)

The Prospect Learning Center's Program Instructional Guide, written by the principal and included at the end of the section, speaks to the goals and objectives of the program.

The primary goal of the Prospect Learning Center is to measurably improve the skills of learning disabled students. To this end, the curriculum is designed to assist each student in sensory motor, perceptual motor, language cognitive development and maturational, social, psychological development. An eclectic approach is used with respect to theorists. The theory used depends on the individual child and/or the style of the individual teacher. Standards of performance are set and are met or superseded by the children.

To attain the best performance for each individual child, the principal has described the structured methods of planning and instruction for teachers which allows them to integrate and sequence the program. The diagnostic prescriptive approach is valued by the Prospect Learning Center principal and is taught to or reviewed with teachers, depending on their needs. The highly structured approach allows for accountability.

The objectives for students can be stated as:

a. To improve each student's performance on standardized test instruments from 6 months to one year in each academic area.

b. To improve each student's self concept as demonstrated by smiles, increased language facility, confidence and positive affect.

The objectives for teachers can be stated as:

a. To improve each teacher's confidence level and reliability in applying the diagnostic prescriptive approach to teaching.

b. To provide each teacher with alternative teaching methods, strategies and tools for success with children.

The Prospect Learning Center's Program Instructional Guide is a blueprint for teachers that includes the principal's expectations for organization, performance and accounting. The guide follows.

PROSPECT'S PROGRAM INSTRUCTIONAL GUIDE

The Prospect Program is designed for learning disabled students who not only are functioning several years below their grade level in academic areas and have language processing difficulties, but who exhibit poor organizational skills, variable memories, weak sequencing skills, difficulties seeing relationships and making generalizations, poor writing skills an short attention spans. In order to provide each student with the best possible instructional program the Prospect Program staff will utilize specific, well planned methods, and techniques to enhance learning for these students, i.e.:

1. precise sequencing skills,
2. comprehensive structure,
3. integration of skills, subjects and activities
4. individual small and large group instruction,
5. a multi-sensory teaching approach to learning by reinforcing each skill through use of all channels of sensory input and output.

This guide is designed to give specific direction for teaching structured reading skills, spelling, handwriting, mathematics, and to designate the multi-sensory teaching technique.

While this guide is specifically designed as an operational plan for instructional organization and delivery at Prospect, its far reaching implication ties in with the D.C. School system's theme for the 1983-1984 school year, Improving the Quality of Teaching and Learning. The never ending challenge of providing our students with a quality education must be eagerly addressed, now more so than ever. [For, it is in the process of truly educating our children that Master Teachers thrive.] Our goal is to try to make each successive year better than the one before, we all must grow; consequently, this instrument will be improved upon with your future contributions and suggestions.

CURRICULUM

The CBC curriculum is the framework from which the student's skills are assessed and described and from which the goals and objectives are derived. The IEP and the CBC curriculum provide the content of what is to be taught. Skills will be taught based on identified needs. The selection of content will be based on: interest (individual learner interests) expectations (determined by total curriculum) time frame (estimated according to IEP).

The Competency Based Curriculum and the Individualized Educational Program combine to provide the sequence of instruction; however, the over-all objectives of the program must be accomplished by integrating the theoretical framework for remediation of learning disabilities with the CBC and the IEP. The following outline presents theoretical considerations which should be implied in the development of strategies for teaching learning disabled students.

A. Sensory Motor/Perceptual Motor Development
   1. Visual Motor Theory
   2. Perceptual Motor Theory - Kephart
   3. Movigenic Theory
   4. Patterning Theory of Neurological Organization-Domain/Delacato
   5. Motor Learning as Physical Education - Cratty
   6. Sensory-Integration Approach - Ayres

B. Language
   1. Language and Learning
   2. Language Arts
   3. Language Pathology
   4. Linquistics
   5. Psycholinguistics

C. Cognitive Development
  1. Cognitive Abilities
    a. Component's of Mental Functioning
    b. Developmental Hierarchy of Cognitive Abilities
  2. Learning Disabilities Relationship to Cognitive Development
    a. Developmental Imbalances
    b. Inadequate Cognitive Structures
    c. Faulty Concept Development
    d. Disorders in Nonverbal and Verbal Thinking

D. Maturational, Social and Psychological Views
  1. Maturational Perspectives
    a. Maturational Lag
    b. Maturational Stages of Logical Thinking - Piaget
  2. Social Perception Perspectives
    a. Deficits in Social Perception
    b. Characteristics of the Child with a Social Disability
  3. Psychological Perspectives
    a. Psychodynamic View - Emotional Status
    b. Behavioral Psychology View - Behavior Modification

PLANNING

The key to effective organization for instruction is planning. Planning is that tool which allows the teacher to systematically design strategies for implementing instructions. Effective planning permits greater flexibility, ease of delivery, better sequencing, continuity in instructions, and improved student performance and skill development. At Prospect, each teacher is provided with a minimum of three planning periods per week, solely, for the purpose of planning in order to meet the students' instructional needs. Planning is critical to good teaching.

DIRECTION INSTRUCTION/GROUPING

The Prospect Program provides for individualized, small and large group instruction. Concepts are taught on an individual basis as needed.

Some of the methods that can be used in classrooms to meet individual needs are as follows:

1. peer or cross age tutoring
2. inquiry-discovery methods
3. group investigations
4. precision teaching
5. psychoeducational diagnostic-prescriptive procedures
6. direct instruction
7. developmental teaching.

Because the program is designed to return students to the mainstream as rapidly as possible, students should work in homogeneous groups as much as possible.

STRUCTURE AND INTEGRATION OF INSTRUCTIONAL OBJECTIVES

The Prospect program recognizes that the instructional needs of the identified student population is met more effectively in a learning environment which is highly structured. Therefore, lessons are geared to progress in a sequential manner and to build upon one another in a hierarchy of skills and knowledge development. The teacher must plan carefully sequenced experiences designed to meet student skill needs individually, and in small and large groups. In addition, these plans must make concepts clear and concrete, incorporating the kind of multi-sensory individualized practice needed for good reinforcement.

Skills and knowledge already learned should serve as reinforcement by integrating the various parts of the curriculum. For example:

1. Spelling words can be used to teach grammatical concepts, literature, social studies or science topics can incorporate spelling generalizations, literature vocabulary can become spelling words, etc.
2. Integration of the language arts areas can expand to bring in other content areas.
3. Directed reading activities can be conducted with content area material.
4. Content area material can be used to reinforce grammatical concepts and so forth.
5. Integration provides needed variety for the reinforcement of basic skills yet uses every opportunity to transfer content information required by other curriculums.

INSTRUCTIONAL SEQUENCE

It is important that a specific sequence of instruction is provided on a daily basis. The instructional sequence does not begin with the direct instruction. The following steps are designed to assist in developing a systematic sequential format for instruction:

- Review of annual goals
- Review of specific goals
- Refinement of assessment strategies
- Analysis of results
- Preparation of intervention plan
- Preparation of instructional materials
- Implementation of plan
- Progress checks/assessments
- Charting/profiling of progress
- Review adjustment of intervention plan
- Evaluation of plan - coordination of cyclical process

PROVISION FOR ORGANIZATIONAL SKILLS

Many students in the Prospect program possess extremely poor organizational skills. To provide assistance with this difficulty, the program will emphasize the development of organizational skills through the following program:

1. Notebook Maintenance (for all students functioning 3rd grade and above)

    a. A notebook maintenance system is an integral part of the program.

    b. Notebooks help to organize the materials being used for learning, provide visable evidence of progress, and serve as reference sources for students.

    c. The notebook will contain assignments, rules and generalizations, dictations, worksheets, graded exercises, quizzes and tests.

    d. Notebooks must be three ring binder type and divided into sections with tabbed dividers. Example: a notebook of English may be divided into the following sections:

        1. Information (class rules, weekly schedules, grading scale, etc.)
        2. Grammar
        3. Parts of Speech
        4. Punctuation
        5. Spelling Rules

    e. It is essential that the notebooks be checked regularly (weekly) by the teacher to insure that they are maintained.

2. Paper Headings

    a. A second aspect of organizational skill is consistency in paper identification. To aid the student in this area the teacher will require students always to place a three line heading on every assignment that is handed in. The heading is placed at the upper right hand corner of the page. The following will be listed:

        1. the student's name,
        2. date of the assignment, and
        3. notebook section into which the paper will be placed after it has been graded and returned.

    b. Likewise, duplicated worksheets and tests that the teacher prepares should show three lines in the upper right-hand corner for students to complete in the same way.

    c. A chart illustrating paper heading guidelines and what it represents should be displayed on a chart on a bulletin board to serve as a memory aid throughout the year.

    d. All teachers will make paper heading a stringent requirement and refuse to grade any paper showing an incomplete or absent heading.

3. Classroom Organization

All classrooms in the program are well organized. Allotted instructional time is highly structured so that students become familiar with a daily routine which is written on the chalkboard with items checked off as they are accomplished. (See Odessa Ford's Classroom Management Plan for Classroom Management Techniques)

A sample lesson plan is provided in the appendix to show how weekly plans can be developed to follow a consistent daily pattern incorporating the type of integration of reading, spelling, grammar and composition skills referred to previously.

The classroom also provides maximum assistance for learning through such things as writing on the board to provide visual cues for remembering. Other memory cues around the room can provide reinforcement for memory including charts, graphs, and progress patterns.

B. The Computer Program Implementation Plan

1. Overview

The Computer Center at the Prospect Center is under the direction of Mrs. Anna Williams, Computer Coordinator and Resource Teacher. Working closely with Mrs. Williams on the overall philosophical goals and directions of the center are Mrs. Azalee Harrison, principal and Mrs. Lillian Butler, art teacher. The Computer Center had its computers functional in January 1984. However, there is no software. The printer is not functional because the modem in inoperative. Nonetheless, the Prospect Learning Center did acquaint upper level students and all staff members with the computer. Students in five classes were assigned to the Center once per week. In addition, teachers of these students were encouraged to incorporate the computer into their lesson plans. One instructor used the computer some mornings to apply mathematics principles previously taught. The same teacher used the graphics component to reward students who completed other assignments quietly. One lesson on income averaging was taught using the blackboard and the computer. The concept was introduced on the blackboard using two different problems to demonstrate the same concept.

2. Workshops

In September, 1983, the principal conducted a workshop for Prospect Learning Center staff on the District of Columbia Public School System's Five Year Plan. The Computer Center Coordinators and Principal met to determine how to best conduct staff training. Since the Computer Center Coordinator was going through the program herself, it was decided that the Coordinator would disseminate knowledge she had gained to other staff members. Consequently, the Computer Center was open Monday - Friday from 8:00 - 8:30 a.m. and 2:30 - 3:30 p.m. for voluntary staff development on an individual basis. Those teachers and aides already involved in computer courses used the time to work on the terminals. Those same teachers and aides observed their classes on the computer terminals.

3. Journals, Magazines and Other Resources

PERIODICALS

AEDS Journal
Association of Educational Data Systems
Washington, DC 20036

THE CATALYST
Western Center for Microcomputers in Special Education
1259 El Camino Real
Suite 275
Menlo Park, CA 94205

Classroom Computer News
341 Mount Auburn Street
Watertown, MA 02172

Closing the Gap
Route 2, Box 39
Henderson, MN 56044

CompuKids
1709 West Broadway
Sedalia, MO 56301

Computertown, USA!
P.O. Box E
Menlo Park, CA 94025

COPH-2
The Committee of Personnel Computers and the Handicapped
2030 Irving Park
Chicago, IL 60618

DIRECTORIES

Descriptions and Reviews of Educational Software

The Apple Software Directory
Volume Three: Education
WIDC VIDEO
5245 West Diversey Avenue
Chicago, IL 60639

BEST COPY AVAILABLE

1983 Directory of Educational Computing Resources
Classroom Computer News
Intentional Educations, Inc.
341 Mt. Auburn Street
Watertown, MA 02172

Commodore Software Encyclopedia
Commodore Computer Systems
681 Moore Road
King of Prussia, PA 19406

Microcomputer Director: Applications in Education Settings
Monroe C. Gutman Library
Harvard University
Cambridge, MA 02138

School Microware Directory
Dresden Associates
P.O. Box 246
Dresden, ME 04342

Sources for Courses
TALMIS
115 North Oak Park Avenue
Oak Park, IL 60301

Creative Computing
P.O. Box 789-M
Morristown, NJ 07960

Cue Newsletter
P.O. Box 118547
San Jose, CA 95158

Educational Computer Magazine
P.O. Box 535
Cupertino, CA 95015

Electronic Education
1311 Executive Center Drive
Suite 220
Tallahassee, FL 32304

Electronic Learning
Scholastic Inc.
730 Broadway
New York, NY 10003

InfoWorld
375 Cochituate Road
Framingham, MA 01701

Instructional Innovator
AECT
1126 16th Street, NW
Washington, DC 20036

Interface Age
16704 Marquardt Avenue
Cerritos, CA 90701

Journal of Learning Disabilities
1331 E. Thunerhead Drive
Tucson, AZ

Personal Computing
P.O. Box 13916
Philadelphia, PA 19101

Popular Computing
Byte Publications
70 Main Street
Peterborough, NH 03458

School Microcomputing Bulletin
Learning Publications, Inc.
P.O. Box 1326
Holmes Beach, FL 33509

Career World (magazine)
Curriculum Innovations, Inc.

Computers for Kids (book)
Commodore Vic-20 Edition
Sally Greenwood Larsen
Creative Computing Press

A Dictionary of Computer Words (book)
Robert Bly

Spotlight on Computer Literacy (book)
Ellen Richman, Random House

Computers in the Schools
Havorth Press, Inc.

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Lillie, D.L. A Microcomputer Assisted IEP. Chapel Hill, NC: University of North Carolina, Unpublished manuscript.

"Special Needs: Programming IEP's." Instructor, October 1981, 41(3), 89.

Taber, F.M. Microcomputers in Special Education: Selection and Decision Making Process. Reston, VA: The Council for Exceptional Children

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BOOKS

Computer Teaching and Learning by Jerry Willis, D. Lamont Johnson and Paul Dixon Dilithum, 1983

Microcomputers in Secondary Education, edited by D. Tagg (Elesevier, 1980)

My Students Use Computers: A Guide for Computer Literacy in the K-8 Curriculum by Beverly Hunter (Reston, 1982)

Picture This Too! An Introduction to Computer Graphics for Kids of All Ages by David Thornburg (Addison Wesley1 1982).

Practical Guide to Computers in Education edited by Peter Coburn and others (Addison Wesley, 1982).

Spotlight of Computer Literacy by Ellen Richman (Random, 1982).

A Teacher's Guide to Teaching BASIC in the Elementary Schools by Elaine Davis

The Turtle Source Book: Practical Guide to Learning and Teaching Logo by Donna Bearden, Katherine Martin and Jim Muller (Reston, 1983).

Using Computers in Mathematics by J. Elgarter and Others (Addison Wesley, 1983).

Using Microcomputers in the Classroom by Larry Bitter and Ruth Comuse (Reston, 1983).

C. The Internship

The internship was formally structured to include observations, interviews and questionnaire administration at the Prospect Learning Center. The current use of the computer center was examined and recommendations were made for the 1984-1985 implementation plan. The internship was completed at a time when two-inservice workshops were presented (the second presenter did a two day workshop). Under the terms of the internship, a final report will be presented to Mrs. Doris Woodson by July 13, 1984. The intern presented the principal with a plaque in appreciation of the internship.

1. Data Collection Methods and Results

The first three weeks of the internship were spent observing all of the classes which were held and interviewing all staff on their use and perceptions of the computer center. The remainder of the time was spent completing the interviews and collecting data on the Prospect Learning Center's program from the computer coordinator and the principal.

The following observation, interview and questionnaire data are presented unedited. The staff have a wealth of experiences and concepts on appropriate applications of computers at the Prospect Learning Center. Many of their recommendations are possible now and will be discussed in more detail in the recommendations section.

a. Observations

The following observations were made during the course of the internship.

Date	Time	Teacher's Class	Instructional Assistants	Lesson Description
5/22/84	1:30	O'Donnell	Butler	Color Graphics
5/23/84	1:00	Ford	Williams/Butler	Parts of the Computer
5/24/84	1:30	Jackson	Butler/Branford	Graphics with Sounds
5/29/84	11:30	O'Donnell	O'Donnell	Math/Averaging
5/29/84	10:00	O'Donnell	O'Donnell	Math/Averaging
5/29/84	1:00	O'Donnell	Butler/Williams	Bouncing Balls
5/29/84	11:00	O'Donnell	O'Donnell/Holmes	Math Averaging
5/30/84	2:00	Ford	Butler/Branford	Personal Information Program
6/1/84	9:30	Cook	Williams	Following Directions
6/1/84	11:00	Peterson	Williams	Personal Information Program
6/5/84	1:00	O'Donnell	Butler	Computer Graphics
6/6/84	1:00	Ford	Butler/Williams	Computer Sounds
6/11/84	1:30	O'Donnell	Butler/Williams	Punctuation

The primary objective of all of the lessons was to acquaint students with the parts of the computer. The specific lessons were geared for literacy and to reinforce concepts taught in class. The math/averaging lesson was an academic reinforcement lesson. The computer was used like a calculator. The lessons emphasized following directions, taught eye hand coordination and listening and attending skills. The graphics lesson allowed youngsters to use their imaginations in designing software. All observations supported the notion that the Prospect Learning Center was in the Awareness Stage, consistent with the District of Columbia Public School System's implementation plan. The specific class schedule was extremely flexible. Proximity to the Computer Center dictated its use by teachers as much as the schedule. Due to the fact that the computer center coordinator worked 50% of the time in that capacity and 50% of the time as the resource room teacher, the schedule varied. The observations showed extremely limited use and experience by two teachers' classes. The schedule and individual teacher's interest in the computer dictate the center's use in the current unwritten model.

The nine student terminals and the teacher's terminals are the Commodore Model No. 1701 (64K). The terminals are equipped for beginning programming, advanced BASIC, advanced Color and Graphic Commands, Sprite Graphics, Creating Sound, and Advanced Data Handling. The lessons observed included BASIC programming, advanced color and graphic commands and creating sound. The most lessons centered on color graphics or used color graphics as a reward for other programming.

The Commodore 64 is user friendly. Its audio has sound effects which can be connected to any good amplification system. Other accessories available at the Prospect Learning Center are the Tractor Printer 8023P, the Commodore CBM Model 4040 dual drive floppy disc and the Mupet-II. These peripherals allow students to reproduce computer graphics on paper and take them home for display.

The Commodore 64 User's Guide is well written and easy to follow and use. There is a "Troubleshooting Chart" which gives the user the system, possible causes and remedies to try before calling the repairman. There is an appendix which tells the user how to program the computer to stimulate the different sounds of instruments (the piano, flute, harpsichord, xylophone, organ, colliape, accordian, trumpet.)

The Commodore Company includes a form for subscriptions to their user magazines in the User's Guide. Power Play is priced at $10.00 per year and Commodore costs $15.00 per year. Games and new uses for the terminal are described in the magazine. There are user associations that provide help for new users.

Some of the possibilities of uses of the Commodore were demonstrated during the internship. More will be tried as the program develops.

During the course of the internship, the principal, social worker, psychologist, adaptive therapy teacher, art teacher, resource room teacher, eight classroom teachers, the educational technologists and the P.T.A. president were interviewed using the intern developed questions. The interview was intended to get a view of the possible computer applications from the global view of the principal, as administrator, and others who serve administrative functions. The results, presented below, represent the responses of the principal, social worker and psychologist, collectively called the "administration." The responses of the classroom teachers and educational technologists will be presented in the next section. The responses were compiled and are presented below: Two of the three persons included as administrators have been at the Prospect Learning Center for four years, one for two years. All individuals have from 7-25 years of experience with the District of Columbia Public School system. Undergraduate degrees were earned from A&T State University, South Carolina State College, and Long Island University. Masters degrees were earned from George Washington University, Ball State University and Atlanta University. Advanced graduate work and/or certification beyond the master's level was achieved at American University, the University of the District of Columbia and Howard University. Computer terminals are available to the administrative staff.

PROJECTED (P) AND ACTUAL (A) COMPUTER APPLICATIONS

1. Office Applications
    a. Staff and Student Rosters (A)
    b. Scheduling and Room Assignments (P)
    c. Student Attendance (P)
    d. Staff Attendance (P)
    e. Telecommunications with Central Office (P)
    f. Store Memos (P)
    g. Store Procedures for Opening and Closing School (P)
    h. Store Student Progress Records (P, 1984-85)
    i. Store Student Test Results (P, 1984-85)
    j. Track Cases (P)
    k. Store Statistical Data (P)
    l. Store Agency Telephone Numbers (P)
2. Instructional Applications
    a. Score Student Tests (P, 1984-85) AIMS program and teacher made test scoring applications
    b. Programming for SUPERLEAD program (P) (Note: SUPERLEAD is an ungraded color coded phonetic and linguistic reading program for elementary and secondary students and adults.)
    c. Drill and Practice
3. Computer Managed Instruction
    a. IEP's (P)
    b. Required Psychological Reports (P)
4. Research
    a. Motivation
    b. Learning

AREAS IN WHICH COMPUTERS ARE NOT APPLICABLE TO SPECIAL EDUCATION

(Note: Two of the three persons interviewed felt applications are or will be applicable to any area if software and technology are developed.)

1. Specific instructional techniques that the computer cannot produce for specific children.

2. Modality gaps (visual, auditory, etc.) of specific children that the computer cannot be programmed for.

3. Human element for reinforcement learning to occur in some children.

4. Introducing new material and setting up basic instructional program.

DREAM LIST PURCHASES

1. Apple Computers, software and peripherals.

2. Software for LEAD

3. Books, magazines, journals for a library which could be expanded into a media center

4. Televisions in each room.

5. The school's own transportation system.

6. Computer terminals in each room, like a learning station.

CRITERIA FOR HARDWARE EVALUATION

1. Durability of Machines

2. Memory capacity

3. Alternative Uses

CRITERIA FOR SOFTWARE EVALUATION

1. Does software match objectives?

2. Clarity of software for LD kids

3. How is software material aligned on the screen?

4. Clarity of objectives

5. Sequential presentation of material

6. Mastery level required

OTHER HELPFUL TECHNOLOGICAL ADVANCES

1. Videotape

2. Television

Comment: Robots may be too distracting

THIS YEAR'S GOALS

1. Improving instruction and learning for youngsters (through diagnostic prescriptive approach).
2. Organize a specific instructional format
   a. require that all teachers pre- and post-test (use the same principal selected tests, i.e., the Woodcock, Slosson, Bender, Brigance)
   b. Analyze test results and teach concepts children have not yet mastered.
3. Provide staff development training on behavior modification for teachers to effectively use strategies.
4. To plan a parenting program for next year.
5. Present a workshop for teachers on how test is used for programming.
6. Presentation on the teacher's awareness of self and how that affects the presentation of material to children.
7. Meeting time lines and completing psychological assessments.
8. Work with specific students.

COULD COMPUTERS HELP WITH GOAL ATTAINMENT?

1. Yes, with test data.
2. Yes, with behavior modification program.
3. Yes, with games to motivate some students.
4. Yes, they could be used for problem analysis for parents.
5. Yes, with instruction.

The interview of the adaptive therapy teacher, art teacher and resource room teacher were separated from the answers of the classroom teachers because the experiences are qualitatively different. That is, these individuals teach to specific content areas. (Although the resource room teacher wears many hats in the school's daily plan of operation, she is included here rather than with administrators or classroom teachers because of the training and expertise with computers. Likewise, the art teacher teaches computer literacy by testing and running different programs and by experimentation with possible lessons and computer graphics. The art teacher, a naturally curious and innovative person, applies her many years of experience and training to the programs with vim and vigor. The results below represent a compilation of the data from these specialists.

These individuals have from one to four years of experience at the Prospect Learning Center. The years of experience with the District of Columbia Public Schools are 3, 11 and 14 years. Undergraduate degrees were earned from Federal City College, Virginia Union University and Wayne State College. Graduate degrees were earned from Wayne State College and the University of the District of Columbia. Graduate work was done at Howard University, Trinity College, the University of Virginia, University of the District of Columbia and American University. The computer terminals in the computer laboratory are available to all of these individuals.

PROJECTED (P) AND ACTUAL (A) COMPUTER APPLICATIONS

1. Administrative Applications
    a. Compile demographic data on athletes (P)
    b. List athletes according to position and speeds (P)
    c. List athletes according to weight for weight training (P)

AREAS IN WHICH COMPUTERS ARE NOT APPLICABLE TO SPECIAL EDUCATION
(Note: One person felt computers were applicable to all areas.)

1. Possibly with PMR or TMR children.
2. Children with severe perceptual problems.
3. Children with physical disabilities and limited use of different modalities (example: the blind)
4. Two computers in each classroom for use as learning stations and for use in experimental fashion so that children can develop their own software.
5. IBM personal computer with peripherals.

DREAM LIST PURCHASES

1. More computers.
2. Equipment and furniture.
3. Redesign art room with sink and facilities.
4. All available IBM software to help develop programs for children.
5. Software to help collect data on athletes (class, strength, rank in class).
6. Place athlete data on software for college coaches (a directory for scouts).

CRITERIA FOR HARDWARE EVALUATION

1. Ability to expand memory without buying additional pieces of hardware.
2. Ability to update equipment.
3. Cost.
4. Hardware that can use different brands of software.
5. How easy is it to use the hardware?
6. How much space does the hardware occupy?
7. What does it cost to operate (overhead)?
8. What are the economics of setting the hardware up and maintaining it?
9. Does the hardware break down a lot?
10. Is the equipment fragile?
11. Is the hardware accessible?
12. Can the LD population touch and manipulate the hardware?
13. Is the print large enough for the LD students?

CRITERIA FOR SOFTWARE

1. Does the software meet your needs?
2. Is the software easy to operate?
3. What are the mechanics of the software?
4. Does the software meet the specific needs of specific LD students?
5. Does the software make sense?

6. Does the software have goals and objectives?
7. Is the software clearly defined and ethically sound?
8. Is the software adaptable to different types of computers?
9. What is the cost?
10. What is the language?

OTHER HELPFUL TECHNOLOGICAL ADVANCES

1. Peripherals.
2. Tape recorders.
3. Synthesizers.
4. Typewriters for dysgraphic children in the special education program.
5. T.V. set for each room for system sponsored programs.
6. Cassettes for multisensory approach to teaching.
7. Monitor and video recorder to film the Prospect Learning Center's games for a better quality picture. This equipment enables the user to pause and see where the breakdown is. The same applications are possible for gold or tennis.

THIS YEAR'S GOALS

1. Introduce intermediate children to types of sports events they'll have in junior high school.
2. Provide experiences in exploratory movement (dance) for primary kids.
3. Provide all children with the opportunity to get into the Special Olympics activities, like ice skating.

COULD COMPUTERS HELP WITH GOAL ATTAINMENT?

1. Yes, with monitoring kids involved in sports.

The eight classroom teachers were interviewed from May 21, 1984 to June 8, 1984. A compilation of the results of the interviews are presented below.

Teachers have been at the Prospect Learning Center from 7 months to 24 years. Teachers have been with the District of Columbia Public School system from 7 months to 24 years. Teachers earned undergraduate degrees from the following schools: North Carolina A&T; Virginia Union University; University of North Carolina; Case Western Reserve; University of Dayton; University of Maryland, George Washington University; D.C. Teacher's College; and Howard University.

Teachers complete graduate courses at the following schools: American University; Northwestern University; George Mason University; University of the District of Columbia; George Washington University and Trinity College.

Computer terminals are available to all teachers in the computer center.

PROJECTED (P) AND ACTUAL (A) COMPUTER APPLICATIONS

1. Office Applications

   None indicated.

2. Instructional Applications

   a. All academic areas (P).

   b. Review addition facts (P).

   c. Select part of speech (P).

   d. Blending sounds to form works (P).

   e. Sight word recognition (A).

   f. Reading comprehension (P&A).

   g. Reading and math (P&A).

   h. Phonetics, reading and math (P&A).

   i. Academic development - reading, spelling, math, written language (P&A).

   j. Perceptual - visual perception (P).

   k. Fine motor development (A).

   l. Remedial language exercises (P).

   m. Voice activator for articulation (P).

   n. Limited applications unless child reads at the second grade level (opinion, P or A not applicable).

o. Physical coordination (P).

p. Eye hand coordination (A).

q. General thinking skills (P&A).

r. Strengthen fine motor muscles (P&A).

s. Fun activities and games for thinking skills (P&A).

AREAS IN WHICH COMPUTERS ARE NOT APPLICABLE TO SPECIAL EDUCATION

1. When students aren't able to work independently (would help if each child had a computer in the classroom).
2. Can't think of any because there are all types of programs.
3. Computers aren't applicable to the mentally retarded because of their poor reading skills.
4. Visually impaired, maybe.
5. I don't know.
6. No such area, computers are intrinsic to the special education program.
7. They are applicable to most areas.
8. None, except physical education computers can be applied to any academic area.
9. Writing IEP's because they are so individualized.

DREAM LIST PURCHASES

1. Computer and software for each student.
2. Software for LEAD program.
3. Videodisc.
4. Computer game in classroom.
5. Material for the computer.
6. A computer for each child with all of the software programmed to his disabilities and the areas each child needs to strengthen.
7. A terminal for every child, for the teacher and all of the software that is available, so that each child can go through the software at his leisure.
8. All of the software on reading to help kids who are problem readers who need to be motivated.
9. Programs specific to reading.

10. A complete computer set with cartridges to go with all areas of education.

11. Apple or IBM have the most software for language intervention. I'd get the voice activated console. It's too bad we have Commodores because there is not enough software on the market.

12. Use the materials for perceptual skills - visual perception and auditory perception (hearing then doing).

CRITERIA FOR HARDWARE EVALUATION

1. Clear directions.
2. Interface devices available for the handicapped.
3. Speech recognition ability device or a foot treadle.
4. Printer.
5. Simple language.
6. I don't know.
7. Optimally, it works without a lot of breakdowns.
8. Is appropriate software available?
9. Study hardware for work with children.

CRITERIA FOR SOFTWARE EVALUATION

1. Not too visually stimulating for this population.
2. All skills presented in a sequential order.
3. Begin easy and go on to complex tasks.
4. Menu driven.
5. Easy to master.
6. "User Friendly."
7. A lot of repetition in math and reading.
8. Presents materials in whole and parts (LD students need the whole presented).
9. Appropriate to students needs and developmental skills.
10. Software is evaluated by how successful it is with children.
11. I don't know.

12. Will is supplement rather than teach?

13. Is is not overly redundant?

14. For language syntax, etc., wide variety of words are needed in the software. (There is no point in more than three repetitions in the software packages.)

15. Not too many skills in each lesson. Rather, "slices of skills" with a lot of repetition of skills.

16. Is there step by step sequencing?

OTHER HELPFUL TECHNOLOGICAL ADVANCES

1. Videodisc.

2. Robot to assist teacher in collecting papers and helping kids in small groups.

3. Word processor to each kids motor skills.

4. Printer.

5. Record player

6. Language Master.

7. I wouldn't want any more technological advances. I don't want to lose that one to one relationship kids need.

8. Talking tapes.

9. Total media center.

THIS YEAR'S GOALS

1. Students improve social skills. They have problems interacting.

2. One year's growth in reading, math, language arts, social studies, etc. - all academic areas.

3. Behavior, socialization and readiness skills.

4. Get students' grades above the score they came in with.

5. Control social behaviors.

6. To be able to read this year, at least 6 months better than in September, in all academic areas.

7. Get along together, work well in group or family setting.

8. More awareness of self - why they do what they do - understand extrinsic things that make them do what they do. We're all dependent on each other.

9. Self acceptance.

10. Affective domain (skills improvement).

11. To have a positive self concept through success oriented activities.

12. To promote functional living skills.

13. 12 different goals (behavior, social, emotional) which increase each child's self concept and improves his/her ability to work with others. (9 of 12 kids will make one year's progress in reading and mathematics. 10 of the 12 will make one year's progress in written language. For three who didn't make progress for 12 months there will be a 6 month improvement).

14. We haven't worked on computers much this year.

15. Increase receptive vocabulary of all kids.

16. To be able to understand the operation of the computer, its limitations and potentials.

17. To be able to attack a skill or problem without being afraid of failure (Goal: comfortable with training and individual goals for each child to be able to communicate, read newspaper, etc.)

COULD COMPUTERS HELP WITH GOAL ATTAINMENT?

1. I haven't tried to achieve any goals using the computer. (12)

2. Yes, although my students have not had that much experience with computers, they felt good about working on the computer awareness program. It was motivational. With a beginning at the start of the year with additional software, we can see a lot of programs. These kids are tactile. The computer give them something to do.

3. Yes. It's not measurable. Off hand, kids love it for motivation, self-esteem, self concept improvement and better computational skills. There is improved attention to detail and fine motor skills.

4. We haven't used the computer. (3)

5. My class is just learning how to use the computer. The computer has helped with eye/hand coordination and listening skills.

THIS YEAR'S GOALS

1. Student's improve social skills. They have problems interacting.

2. One year's growth in reading, math, language arts, social studies, etc. - all academic areas.

3. Behavior, socialization and readiness skills.

4. Get students' grades above the score they came in with.

5. Control social behaviors.
6. To be able to read this year, at least 6 months better than in September, in all academic areas.
7. Get along together, work well in group or family setting.
8. More awareness of self - why they do what they do - understand extrinsic things that make them do what they do. We're all dependent on each other.
9. Self acceptance.
10. Affective domain (skills improvement).
11. To have a positive self concept through success oriented activities.
12. To promote functional living skills.
13. 12 different goals (behaviors, social, emotional) which increases each child's self concept and improves his/her ability to work with others. (9 of 12 kids will make one year's progress in reading and mathematics. 10 of the 12 will make 1 year's progress in written language. For three who didn't make progress for 12 months advance there will be a 6 month improvement.
14. We haven't worked on computers much this year.

The following responses to the interview questions were made by the Educational Therapists.

The Educational Therapist have from 1-3 years of experience at the Prospect Learning Center and from 1-13 years experience with the District of Columbia Public School system (DCPS). The Educational Therapists attended the following schools: McKinley Tech; Phelps Vocational Training School (automotive training); UDC, LaCoste Gardner and Capitol Tech Institute; Western H.S.; St. Cecelia's; Howard University; UDC; Washington INternational College; D.C. Teachers College; M.M. Washington Vocational High School; and Clafton College. Computer terminals are available to the Educational Therapists in the Computer Center.

PROJECTED (P) AND ACTUAL (A) COMPUTER APPLICATIONS

1. Fine motor skills (A&A).
2. Memory skills (P&A).
3. Visual skills (games) (P&A).
4. Color recognition sounds (audio) (P).
5. I don't know, I haven't even used a computer.
6. Following directions (A).
7. Math (P).
8. Better perception (P&A).
9. Motor skills (P&A).
10. Increased exposure to computer world (P&A).
11. Math skills on a computer are more like a game (P&A).

AREAS IN WHICH COMPUTERS ARE NOT APPLICABLE TO SPECIAL EDUCATION

1. It depends on the type of computer. If a person is blind, he must have the audio as he types. Maybe, the mentally retarded. They are not excluded totally because the mentally retarded can do basic commands.
2. I don't know.
3. Computers can do everything.
4. None.
5. Computers aren't applicable if the child doesn't know the concrete basic facts.

DREAM LIST PURCHASES

1. Graphic printer.
2. CRT monitor.
3. AV hook-up to record and do programs.
4. AV equipment.
5. Everything.
6. Printer.
7. Disc.
8. Floppy disc drive.

9. Terminal computer - all peripherals.
10. Robot in the classroom and in the Computer Center.
11. Coleco vision.
12. All equipment that doesn't need maintenance and takes other company's parts.

CRITERIA FOR HARDWARE EVALUATION

1. Reliable.
2. Not too expensive.
3. Flexibility of software for classroom.
4. Repairs reliable.
5. I don't know.
6. I don't know but there are a lot of problems with Commodores. The DCPS should spend the same money for fewer number of quality computers or more money for the same number of a better brand of computers.

CRITERIA FOR SOFTWARE EVALUATION

1. Flexibility.
2. Expense.
3. Easy to use.
4. I don't know (5).

OTHER HELPFUL TECHNOLOGICAL ADVANCES

1. AV equipment - cameras, projectors, reel to reel equipment.
2. P.A. system for the school.
3. Vocational suppers, automotive things.
4. Office machines - KISS II.
5. Science equipment - microscopes, etc.
6. Headphones for listening stations.
7. Robot.
8. Simon devices for thinking and perception.
9. Texas Instruments; Input/Output for younger kids.

10. Robots
11. Telecommunications.
12. Word Processing.
13. More typewriters.
14. Xerox machines
15. TV sets.
16. More computer terminals.
17. More books.
18. More equipment like that displayed at the CEC Convention at the Convention Center.

THIS YEAR'S GOALS

1. It depends on the child. For some it's improved reading comprehension. For another, math.
2. Handwriting.
3. Basic facts in addition, multiplication, intro to words.

COULD COMPUTERS HELP WITH GOAL ATTAINMENT?

1. Yes, to reinforce behavior with computers.
2. Yes, for those motivated to use the computer.
3. No, I haven't used them but they could help.
4. No.
5. Yes, in math, that's all it was used for. I don't know what Mrs. O'Donnell did in there.

The P.T.A. president was interviewed on May 23, 1984. She, as a parent, is considered as a separate category. Her child has been at the Prospect Learning Center for the past four years and she has had children in the District of Columbia Public Schools system since 1971. The P.T.A. President has been a volunteer at the school for the past four years.

The P.T.A. president believes the computer instruction will help youngsters learn more effectively. In addition, she feels that once youngsters have computer skills, these skills will help them stay in public school as a mainstreamed student. The P.T.A. president's goal was to see that the Prospect Learning Center P.T.A. does as well as the regular school's P.T.A. in supporting the program. The P.T.A. president would like to see the Prospect Learning Center's Computer Center as a model for special education schools. She would like for parent's to get involved in the training that they can encourage their children to use the computer to learn more. The P.T.A. president, like the principal, sees the partnership between the school and home as basic to the well being of the child.

The interview data presented on the preceding pages speaks to the possible computer applications, as seen through the eyes of the Prospect Learning Center staff and the P.T.A. president. Clearly, administrators have administrative and instructional management types of applications in mind where as teachers and aides indicate specific types of instructional applications. The variety of responses from all groups is indicative of the varied backgrounds, learning experiences and levels of knowledge of computer applications and theory that make the staff so ideal for a model program, the talent, cooperative spirit, initiative, enthusiasm and child advocacy of the principal and her staff make this center an ideal choice for a model program.

The questionnaires were filled out and returned after the interview without names. All responses were anonymous. The results for the fourteen questionnaires returned are presented, as follows:

1. The computer can store information now found on student records.

No Response	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
	8 (57%)	6 (43%)	0 (0%)	0 (0%)	0 (0%)

Comments: None

2. The computer can sort and count the number of students in special education at the Prospect Learning Center by race, gender and class

No Response	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1 (7%)	7 (50%)	6 (43%)	0 (0%)	0 (0%)	0 (0%)

Comments: None

3. The computer can retrieve information from its memory quicker than a clerk can from the files.

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
9 (64%)	5 (36%)	0 (0%)	0 (0%)	0 (0%)

Comments: "If retriever knows how and computer is not down."

4. The principal needs a computer to file student records.

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
4 (29%)	7 (50%)	2 (14%)	0 (0%)	1 (7%)

Comments: None

5. The principal needs a computer to file faculty and staff records.

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
2 (14%)	9 (65%)	2 (14%)	0 (0%)	1 (7%)

Comments: None

6. The principal needs a computer to project the future enrollment of the Prospect Center.

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
2 (14%)	4 (29%)	5 (36%)	2 (14%)	1 (7%)

Comments: None

7. The Prospect Learning Center's secretary can maintain a mailing list using a computer.

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
9 (65%)	5 (35%)	0 (0%)	0 (0%)	0 (0%)

Comments: None

8. The Prospect Learning Center's computer terminal for administrative functions (ex. student record keeping) should be accessible to everyone.

No Response	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1 (7%)	1 (7%)	7 (50%)	1 (7%)	3 (22%)	1 (7%)

Comments: "Personal records should not be exposed to everyone."
"Not to everyone, just staff."
"Should be accessible to necessary staff only."
"Only to staff members."

9. Each special education teacher needs a computer in her classroom.

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
2 (14%)	4 (29%)	6 (43%)	2 (14%)	0 (0%)

Comments: "Except special areas such as P.E., Art, etc."
"It would be nice."

10. A computer can help a special education student learn.

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
8 (64%)	5 (36%)	0 (0%)	0 (0%)	0 (0%)

Comments: None

11. The computer is more successful at teaching special education students than traditional methods.

No Response	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1 (7%)	2 (14%)	0 (0%)	3 (22%)	7 (50%)	1 (7%)

Comments: None

12. The computer, like the calculator, is an aid to learning.

No Response	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
2 (14%)	8 (57%)	4 (36%)	0 (0%)	0 (0%)	0 (0%)

Comments: None

13. I have a computer in my classroom or office.

No Response	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
5 (44%)	1 (7%)	0 (0%)	2 (14%)	3 (21%)	2 (14%)

Comments: "I have access to one."
"I have access to them as I teach computer graphics."
"No."
"I wish I did."

14. I know how to use the computer.

No Response	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
2 (14%)	3 (21%)	5 (44%)	3 (21%)	0 (0%)	0 (0%)

Comments: "Some."
"Basic things."
"No."
"I am still learning."
"In the process of learning."

15. The computer may replace me.

Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
1 (7%)	3 (22%)	2 (14%)	3 (22%)	4 (35%)

Comments: "Impossible! It cannot respond to all human needs."
"Might/Depends on what you want me to do."

16. Please list the approximate dates and titles of workshops and/or classes on computers you attended or presented at.

Computer Literacy (N=5)
Computer Programming (N=1)
Computer Assisted Instruction
Instructional Product Development
Instructional Product Development
Computer Business in Society
Systems and Information Analysis

d. Workshops

i. Paul Trachtman, Science Editor of the Smithsonian Magazine.

Paul Trachtman presented a workshop at the Prospect Learning Center on May 29, 1984 at 2:30 p.m. The audience was provided with a bibliography, included with the announcement. Prior to the presentation, the audience was provided with Trachtman's article "Putting Computers Into the Hands of Children Without Language" to read as background information. The presentation covered the issues of labeling, the question of meaning for children and the use of standardized test scores by teachers. Mr. Trachtman cautioned educators about the images produced by the label, the programming based on weaknesses rather than strengths and the boxes we create for children by using the labels. The meaning for youngsters must be approached within the total social context. The meaning is related through the environment. The interesting thing about the environment is that it is manipulatable. Indeed, computers can represent as well as foster environmental change. The computer suspends the judgment of the child, so characteristic of educators. This suspended judgment allows for a new dialogue. Although the misuse of test scores has been well documented, Trachtman's workshop reminded us all of our "need" to know the score and use it, sometimes unknowingly, in a child limiting way. Again, we program to the score just as we program to the label. This writer enjoyed this excellent presentation and greatly appreciates the empathy this journalist brings to the handicapped children he writes and speaks about.

ii. Dr. Sally Pickert, Education Department, The Catholic University of America, Ms. Jean Barton, Education Department, The Catholic University of America, Dr. Priscilla Waynant, EduTec Unlimited.

Dr. Pickert, Ms. Barton and Dr. Waynant presented two two hour Microcomputer Education In-service Workshops on June 12 and June 14, 1984 at the Prospect Learning Center.

Day 1 Topic: How Do You See the Microcomputer Meeting the Needs of Your Students/Teaching?

Characteristics of Special Learners
Characteristics of the Computer
Examples of the Computer as tool, Tutee, Tutor

Laboratory time: Software on the Commodores

Day 2 Topic: LOGO and Reading/Writing Activities on the Computer.

LOGO: Familiarity at the Keyboard
Slides of Children at Work
Reading/Writing Activities

- o Wordprocessing
- o BASIC Programs
- o Commercial software for language Arts Class

The presenters demonstrated the following software for use in special education classes; particularly the learning disabled:

1. Face-maker

   Recommended for use teaching body parts, reading sight words, sequencing skills, problem solving and memory.

2. Juggles Rainbow

   Recommended for teaching directionality. Keyboard can be separated with a strip of paper to teach "above", "below", "left", and "right" concepts. Presenters recommend labeling the screen "left" and "right", "above" and "below."

3. Gertrude's Secrets for Language Arts

   Recommended for ages 6-12. Based on the book Gertrude the Goose Who Forgot. Teaches language skills.

4. MOPTOWN'S MOP COUNT

5. Children's Television Workshop

   Software based on Sesame Street program.

6. Jelly Beans

   Pre-school counting game recommended for ages 3-5 years old.

7. The Factory

   Provides a good basis for LOGO. Thinking and problem solving with a punch machine, a rotating machine, etc. A lot of steps. Skills range from easy to difficult.

8. Micro Addition (The Hayden Company)

   Addition problems with colorful graphics. The presenters indicated that most educators would get by for the next two years with knowledge of LOGO, wordprocessing and software selection strategies.

May 29th 2:30 Workshop Presentation
Smithsonian Article

Additional Information for "Children Without Language"

Many parents and professionals concerned about children who have difficulties with language have requested more information about the work I described in my SMITHSONIAN article (Feb. 1984). Below are the current addresses and telephone numbers of Dr. Laura Meyers and Dr. Theresa Rosegrant, whose research I described. In addition, I have compiled a list of additional readings which covers a wide range of approaches, from general accounts of the learning process to more specific articles on language problems. The list reflects the basic approach to learning and language which is manifest in the work of Meyers and Rosegrant, and I hope it will be useful in different ways to many of you who have written to me.

Dr. Laura Meyers
1725 Promenade, #323
Santa Monica, CA 90401
(213)743-3021

Dr. Theresa Rosegrant
Department of Elementary Education
413 Farmer Building
Arizona State University
Tempe, AZ 85287
(602)965-6988

(The Talking Textwriter is currently available from Dr. Rosegrant for the Apple, and is being developed for the IBM personal computer. Dr. Meyers' software for speech and literacy acquisition (PEAL and KEYTALK) is in the final stages of development and a means of distributing it is being set up. She is compiling a record of those interested in obtaining it.)

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2. Conclusions and Recommendations

The District of Columbia Public School system has a well defined computer implementation plan. The Computer Literacy Training Laboratory provides support and disseminates technological knowledge to District schools. The three year training grant, secured through a proposal written by the Division of Special Education and Pupil Personnel Services, has specific goals, objectives, activities and an evaluation plan which will provide accountability to the funding source and to the employees who train through the program. The District Five Year Plan allocates specific duties and responsibilities to the Principal and Educational Technology Resource Teacher which insure the success of the program. The program, as designed, relates to the curriculum. Auditory perception, visual perception, perceptual motor, oral language and functional living skills are enhanced through the program. The Commodores have an auditory component. The eye hand coordination of the student is facilitated through the programming. Oral expression and interpersonal skills between students are enhanced through computer usage. The District of Columbia Public School System has the support and network system to ensure program uniformity in goals and objectives. Activities on the computer may differ in individual area schools but the overall goals and objectives are attainable with the current plan.

The Prospect Learning Center's program, in its first year, progressed satisfactorily. Despite setbacks beyond the control of personnel at the Prospect Learning Center (computers were installed in January 1984), older students did have access time on the computers. Computer literacy, as observed, is a direct function of access time and terminology usage. Consequently, computer literacy levels differed among classes. Those students who used the computers the most appeared to be the most familiar with the computer terminology and keyboard. IN addition, 3 students in the class with the most access time have home computers. The use of the home computer probably affects the computer terminology usage and familiarity with the keyboard. Nonetheless, group differences were observed which appear to be significant. Research in this area would be helpful for future program development. A pre-program questionnaire completed by the aide on each student would identify those with home computers. In that way, the results of the teaching could be better assessed.

There were no reversals or omissions observed when students use the computers. This would be an appropriate area of study. Do some symptoms of learning disability disappear when students interface with the computer? Research needs to be done is this area. Computers appear to give students practice with directionality, following directions, hand-eye coordination and seating skills. The programs all emphasize the processes involved in these skills. The computer may be providing learning disabled students with the missing loop in the perceptual and cognitive processes. Further research needs to be done in this area.

The observation periods revealed the interdependence of the terminals, i.e., there is a master "teacher" terminal to which the other nine terminals are connected. This decreased the independent programming capability of the computer terminals. An alternative arrangement would make each terminal independent. The observation period also revealed inter-student cooperation. Individual students assisted each other on the computer terminals.

The interviews with staff revealed a number of actual and possible computer applications. Specifically, computers were described as being applicable to the administrative program. That is, student records, test results and files can be maintained on the computer terminal. Indeed, they already are. The AIMS program will expand the administrative capabilities of the office terminal. In addition, the computer could assist the psychiatrist and social worker by maintaining an active file of agency referral sources, tracking cases and storing statistical data for reports. The applications related to school procedures include scheduling, some assignments, attendance, storage of memos and telecommunications with central offices are possible now. The technology exists to introduce the projected applications recommended by administrators.

Within the instructional area, computers can provide students with drill and practice and simulation exercises. The software is available. Software for drill and practice was demonstrated in the workshop conducted by Sally Pickert and others from the Catholic University of America. Specifically, Facemaker teaches body parts, Gertrude the Goose who Forgot teaches shapes and patterns and computer literacy. MOPTOWN, Jelly Beans, Microaddition, Microdivision, etc. have software in mathematics. All of these program provide the learner with drill and practice or simulation. Cognitive skill practice on the computer can be individualized and non-judgmental. It doesn't matter if it takes one child more time to process than another child. This advantage of the computer is truly beneficial to all.

Other applications include diagnosis, programming and peer acceptance. The graphics are already a reality at the Prospect Learning Center. Indeed, the 1984-1985 implementation plan incorporates the suggestions of the staff for future growth and development.

THE PROSPECT LEARNING CENTER'S
COMPUTER PROGRAM FOR THE 1984-1985 SCHOOL YEAR

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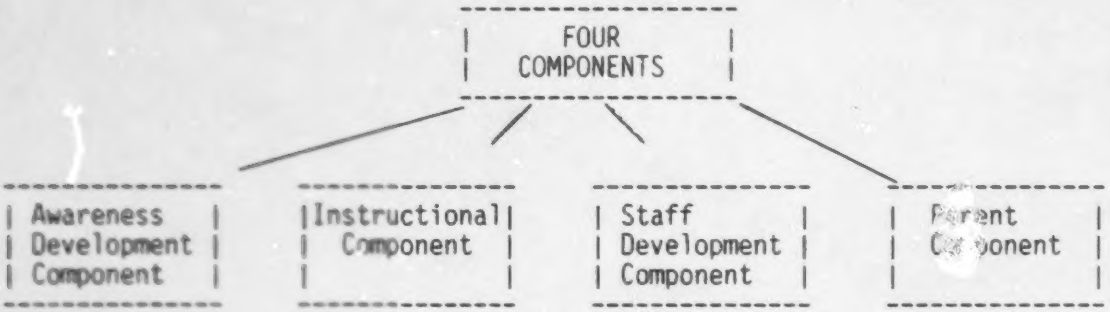
I. Introduction

The Prospect Learning Center's Computer Program for the 1983-1984 school year was designed with the underlying philosophy that the program is a child-centered one. The success of the program can only be measured in terms of how well it meets the needs of each specific child. With this in mind, the computer allows for a great deal of flexibility in programming to stimulate, motivate and provide the child with a new tool, the computer, for learning. All software programs are successful and useful only to the extent that the child enjoys using them and learns from the experience. For the learning disabled child, to whom this program is dedicated, we pledge our creativity, initiative and collective experiences towards the development of software and adaptations of software to meet each LD student's needs.

The excitement and challenge of the technology age as experienced by the larger society, is here at the Prospect Learning Center. The staff, while varying in interest, computer training and learning/teaching styles are committed to the children here. It is this commitment which speaks to the self-growth that the staff has agreed on. By adding the computer as a learning aid, teachers are offering a new option which appeals to a number of modalities. The computer offers a whole new dimension to learning. As our program develops, so will our needs. We are committed to cyclical evaluations of our program, and to the adjustment or restructure of the program when necessary.

During the 1983-1984 school year, computers were operational in January of 1984. Older students went through the objectives of the Awareness Phase of the District-wide Plan. We at the Prospect Learning Center learned from our experiences. It is this learning which facilitated the development of the 1984-1985 school year model.

II. The Model: Four Components



The Prospect Learning Center's Computer Program for the 1984-1985 school year consists of four components: the Awareness Component; the Instructional Component; the Staff Development Component; and the Parent Component. The Awareness Component represents the program for younger children who are being exposed to computers for the first time. It is very similar to the 1983-1984 school year program that was administered to older children. The goals and objectives are the same. The topics covered, schedules and activities have been refined to place more emphasis on the objectives which were partially obtained by older youngsters during the 1983-1984 school year. The Staff Development Component is designed for teachers, aides and others involved in the implementation of learning strategies for children at the Prospect Learning Center. However, the school psychologist, social worker, occupational therapist, and part-time dance instructor will be strongly encouraged to attend the computer literacy training section and all other sessions in which they have interest. The Instructional Component consists of computer-assisted-instructional programs which are designed to provide the student with drill and practice, primarily. Computer graphics will be continued as they were implemented during the 1983-1984 school year. The Instructional Component will expand during 1985-1986 to include more simulation and strategy programs.

The Parent Component is included to provide parents access to information on the computer program at the Learning Center.

A. Staff Development Component

1. Goal Statement

Goal: To encourage teachers to interface with the computer and use the computer more as an instructional aid.

a. Objectives

1. to develop teacher knowledge of computer concepts

2. to develop teacher knowledge of computer applications

3. to develop in each teacher skills in using the Commodore 64K.

i. Activities

For Objective 1

The following activities will be done to meet the first objective. The evaluation of the activity follows the description of the activity.

- Provide each teacher with a glossary of computer terms with asterisks next to frequently used terms two weeks prior to the computer literacy workshop. The evaluation will be completed as an item on the Computer Literacy Workshop Evaluation Form.

- Provide teachers with hands-on experience on functional aspects of the computer. The evaluation is completed as an item on the Computer Literacy Workshop Evaluation Plan.

Provide teachers with hands-on experience practicing programming three different types of problems. The evaluation is computed as an item on the Computer Literacy Workshop Evaluation Plan.

- Provide teachers with the opportunity to develop their own programs in any area they chose. The evaluation is completed as an item on the Computer Literacy Workshop Evaluation Plan.

For Objective #2

The following activities will be done to complete the second objectives. The evaluation of the activity follows the description of the activity.

- Present the teacher with written hand-outs on specific types of computer applications. The evaluation is completed as an item on the Computer Applications Workshop Evaluation Form.

- Provide the teacher with the opportunity to work with software which demonstrates specific types of applications in special education. The evaluation will be completed on the Computer Applications Workshop Evaluation Form.

- Provide the teacher with workshop time to use the software designed for computer-managed instruction, particularly the IEP. The evaluation will be completed on the Computer Applications Workshop Evaluation Form.

For Objective #3

The following activities will be done to meet the third objective. The evaluation of the activity follows the description of the activity.

- Provide the teacher with time in the teacher skills Development Workshop to work with software that provides time and practice for specific reading concepts. Evaluation will be completed as an item on the Teacher Skills Development Workshop Evaluation Form.

- Provide the teacher with the time to develop her/his own program in any area. The evaluation will be completed as an item on the Teacher Skills Development Workshop Evaluation Form.

- Provide the teacher with time to add graphics, design in color to the teacher developed programs. The evaluation will be completed as an item on the Teacher Skills Development Workshop Evaluation Form.

2. Topical Outline of Classes

The following workshops will be presented to teachers during the 1984-1985 school year:

I The District Wide Plan - Takoma

II Computer Literacy

III Computer Applications Generally

IV Computer Applications in Special Education

V Computer Application for the LD Student

VI Teacher Skills Development

VII Teacher Computer Competency Levels

VIII The Computer Center Library

IX The Computer Center's Resources

X The Computer Center's Storage Capability

XI Surprise Topic: Guest Speakers (Topics to be Selected by Guests)

XII Evaluation Session - Brainstorming

3. Class Schedule

Time Needed		
90 minute session	I	The District Wide Plan - Takoma Program Group I: September 1984 Group II: September 1984
90 minute session	II	Computer Literacy Group I: October 1984 Group II: October 1984
1 hour session	III	Computer Applications Generally Group I: November 1984 Group II: November 1984
1-2 hour session	IV	Computer Applications in Special Education Group I: November 1984 Group II: November 1984
1-2 hour session	V	Computer Applications for the LD Child Group I: November 1984 Group II: November 1984

2 hour session	VI	Teacher Skills Development Group I: December 1984 Group II: December 1984
1 hour session	VII	Teacher Computer Competency Levels (Awards) Group I: December 1984 Group II: December 1984
1 hour session	VIII	The Computer Center Library Group I: January 1985 Group II: January 1985
1 hour session	IX	The Computer Center's Resources Group I: February 1985 Group II: February 1985
1 hour session	X	The Computer Center's Storage Capability Group I: March 1985 Group II: March 1985
1 hour session	XI	Surprise Topic: Guests Group I: April 1985 Group II: April 1985
2 hour session	XII	Evaluation Session - Brainstorming Group I: April 1985 Group II: April 1985

4. Training Schedules

	M	T	W	TH	F
2:30	Group I		Group II		
3:30	Training		Training		
4:30					

Note: Two hours are allocated in the schedule, even though workshop times range from 1-2 hours.

The Prospect Learning Center's training schedule for workshops for teachers is diagrammed above. The two groups, 1 and 2, will meet on Mondays and Wednesdays on the specific dates listed in the schedule.

B. Awareness Component

1. Goal Statement

Goal: To expose young children to the computer.

a. Objectives

1. to use computer terms with young children

2. to demonstrate to young children the functions of the computer

3. to demonstrate to young children the parts of the computer

4. to provide young children with hands-on experiences with simple programs.

i. Activities

For Objective #1

The following activities will be done to meet the first objective. The evaluation of the activity follows the description of the activity.

- Provide young children with simple terminology by introducing three new words at a time. The evaluation of term usage can be checked by the aide on a checklist type evaluation form on COMPUTER TERMS. The same checklist can be maintained on each child in the Computer Center for evaluation over time.

- Provide young children practice time doing what the terms mean. The checklist and evaluation can be checked by the aide.

For Objective #2

The following activities will be done to meet the second objective. The evaluation of the activity follows the description of the activity.

- Provide young children with lessons on what the computer does, demonstrating on the computer with the children, as teaching occurs. The evaluation is completed when the aide checks each student's session.

- Provide the young child with a demonstration and practice at graphics. Aide will complete checklist as this is accomplished with each child.

For Objective #3

- Give each child a picture of the computer parts. Check off on the child's check list when the picture was given to the child as the evaluation.

- Spend one lesson on computer memory and demonstrate the capability of the computer. The aide will check off each child's list the exposure to computer memory item.

- Spend one lesson on computer input/output. The aide will check off each child's list the exposure to the input/output concept.

For Objective #4

The following activities will be done to meet the fourth objective. The evaluation of the activity follows the description of the activity.

- Provide young children with computer games. The aide will check off the evaluation item on computer games for each child who participates in the computer game(s) session(s).

- Provide young children graphic art experiences. The aide will check off the evaluation item on graphic arts for each child who participates in the computer game(s) session(s).

2. Topical Outline of Classes

The following outline of topics will be covered during the 1983-1984 school year:

I Computer Terms (Three at each session)

II Garbage In/Garbage Out
(Three new computer terms each session)

III Picture Computer Parts
(Three new computer terms each session)

IV Picture What Computer Parts Do
(Three new Computer terms at each session)

V Hands-on with Computer Parts
(Three new computer terms at each session)

VI Computer Graphics
(Three new computer terms at each session

VII Graphics with Numbers

VIII Graphics with Non-sense Syllables

IX Graphics with Words or Non-sense Syllables

X Evaluation (Tape students' verbal evaluation of program)

3. Class Schedule

Time Needed	Class	
1 hour session	I	Computer Terms (Vocabulary) Used During Graphic Art Session Month of September
1 hour session	II	Garbage In/Garbage Out Month of October
1 hour session	III	Picture Computer Parts Month of November
1 hour session	IV	Picture What Computers Do Month of December
1 hour session	V	Hands-on Practice with Computer Parts Month of January
1 hour session	VI	Computer Graphics Month of February
1 hour session	VII	Graphics with Numbers Month of March
1 hours session	VIII	Graphics with Non-sense Syllables Month of April
1 hour session	IX	Graphics with Words or Non-sense Syllables Month of May
1 hour session	X	Tape Students' Verbal Evaluation of Program Month of June (Note: individually while other students do graphics with words or non-sense syllables or plain graphics)

4. Training Schedule

Weekly Schedule For Young Children
(For children with limited exposure during 1983-1984 school year)

	M	T	W	TH	F
10-11	Preschool class	Jackson's class	Archey's class	Oliver's class	Shapiro's class
11-12					
12-1					
1-2					

The Prospect Learning Center's weekly training schedule for young children is designed to acquaint them with the computer and allow them adequate practice to learn by doing their own activities with words and graphics in this awareness component.

C. Instructional Component

1. Goal Statement
Goal: To reinforce on the computer, academic skills taught in
- the classroom to older children.

a. Objectives

1. to review with older students the language, parts and usage of the computer.

2. to provide hands-on experiences for older children with software on reading

3. to provide hands-on experiences for older children with software on spelling.

4. to provide hands-on experiences for older children with software on mathematics

5. to provide hands-on experiences for older children with software on language arts

6. to provide hands-on experiences for older children with software combining graphics with academic content.

i. Activities

For Objective #1

The following activities will be done to meet the first objective. The evaluation of the activity follows the description of the activity.

- Provide older students with lists of terms for review. The aide will complete the checklist item on the form maintained in each student's folder for evaluation.

- Provide older students with pictures of the parts of the computer. The aide will complete the checklist item on computer knowledge on the form maintained in each student's folder for evaluation.

- Provide older students with practice using each part of the computer (input on keyboard for output on terminal screen and storage of program for retrieval later). The aide will complete the checklist item on hands-on experiences with computer parts as each student demonstrates each usage independently.

For Objective #2

- Provide older children with the Bank Street Reader program. The aide will complete the checklist item on Bank Street Reader as each student demonstrates each usage independently.

- Provide older children with teacher made software based on the L.E.A.D. program. The aide will complete the checklist item on the L.E.A.D. program software as each student demonstrates each usage independently.

For Objective #3

- Provide older children with teacher made spelling lists on the computer. (Note: Letters may be printed in certain colors to "raise" letters from the screen for some LD kids). The aide will complete the checklist item on the teacher made spelling list program (identified by the level of spelling words) as each student demonstrates mastery of list words.

- Provide older children with lists matching spelling words with their meanings. The aide will complete the checklist item on definitions (by level) as each student masters the meaning of the spelling list words.

- Provide older children with spelling words software in game format. The aide will complete the checklist item on spelling words in game format once words are mastered as an evaluation.

(NOTE: Specific mastery of skills in mathematics as outlined by the District and as rated as necessary by the administration can be checked off on teacher made or commercially prepared software as the skill is covered.)

- Provide older children with mathematics programs. The aide will check off the mastery of the skill for each student as it occurs on the evaluation sheet.

- Provide older children with commercially prepared drill and practice software in mathematics. The aide will check off the mastery of the skill for each student as it occurs on the evaluation sheet.

- Provide older children with the opportunity to develop their own mathematics problems on the computer. The aide will check off the student-created mathematics problem item on the evaluation checklist, if and when the behavior occurs.

(NOTE: Specific Mastery of skills in Mathematics As Outlined by the District and As Rated As Necessary by the Administration can be checked off on teacher made or commercially prepared software covers the skill.)

For Objective #5

- Provide older children language arts programs. The aide will check off the mastery of the skill for each student as it occurs on the evaluation sheet.

- Provide older children with commercially prepared drill and practice software in language arts. The aide will check off the mastery of the skill for each student as it occurs on the evaluation sheet.

- Provide older students with the opportunity to develop their own language arts software. The aide will check off the mastery of the skill for each student as it occurs on the evaluation sheet.

  (NOTE: Specific Master of Skills in Language Arts as outlined by the District and as rated as Necessary by the Administration can be checked off on this sheet if teacher made or commercially prepared software covers the skill.

For Objective #6

- Provide older children with hands-on experiences making bar graphs for mathematics programs. The aide will complete the checklist item on problems with bar graphs as each student demonstrates mastery of problems with bar graphs.
- Provide older children with hands-on experiences making line graphs for mathematics programs. The aide will complete the checklist item on problems with line graphs.
- Provide older children with hands-on experiences making design for computer-composed stories. The aide will complete the checklist item on computer-composed stories with designs.

(NOTE: Specific Mastery of Skills involved in Combining Graphics with Academic Area Objectives As Outlined by the District and as Rated as Necessary by the Administration can be checked off on this sheet if teacher made or commercially prepared software covers the skill.)

2. Topical Outline of Classes

The following outline of topics will be covered during the 1983-1984 school year:

I Computer Literacy Review I

II Computer Literacy Review II

III Mathematical Applications I

IV Mathematical Graphs in Graphics

V Punctuation Programs

VI Graphics and Stories

VII Mathematical Applications II

VIII Computerized Elections

IX Language Arts Stories on the Computer

X The Story Sounds

XI Computer Games

3. Class Schedule

Time Needed		
1 hour session	I	Computer Literacy Review I
1 hour session	II	Computer Literacy Review II
1 hour session	III	Mathematical Applications I
1 hour session	IV	Mathematical Graphs in Graphics
1 hour session	V	Punctuation Programs
2 hours session	VI	Graphics and Stories
1 hour session	VII	Mathematical Applications II
1 hour session	VIII	Computerized Elections
1 hour session	IX	Language Arts Stories on the Computer
1 hour session	X	The Story Sounds
2 hours session	XI	Computer Games

4. Training Schedule

Weekly Schedule for Older Children
(or children with exposure to computers during the 1983-1984 school year)

	M	T	W	TH	F
1-2	Ford's class	Cook's class	O'Donnell's class	Peterson's class	

The Prospect Learning Center's weekly training schedule for older children is designed to expand on the knowledge gained during the 1983-1984 school year. The afternoon schedule provides older children with the motivation to achieve.

The key to the Instructional Component is that the computer allows each student to work independently at his or her own rate in each subject area. Therefore, the aide's presence in the Computer Center is critical for program evaluation. The aide must check off the skill for the specific area the student is working in. Due to the fact that the computer terminals are housed adjacent to each other, students can now compare work by looking at each other's programs on the same program. This sometimes produces an unhealthy air of competition. For this reason, these students may be encouraged to work on different programs at adjacent desks to further encourage independent study which capitalizes on the self pacing of the computers.

Each student's report card will reflect a grade earned for computer literacy. This will provide parents with feedback on each student's programs.

D. Parents Component

Parents have played a viable role in the Computer Center Program at the Prospect Learning Center since its inception. Parents formed an interest group during the 1983-1984 school year which resulted in the presentation by Paul Trachtman, Science Editor for the Smithsonian Magazine. With this foundation, the Prospect Learning Center staff intends to structure monthly computer literacy/applications for parents. In addition, a parent volunteer is invited to join the Advisory Board, the Software Review Committee and the Library Committee. The parents themselves will structure their own objectives and activities at the beginning of the school year.

II Plan of Operation

A. Staffing Pattern

The Resource Room teacher will assume the title of Computer Center Coordinator and will work 100% of the time in the Prospect Learning Center's Computer Program. The aide for the Computer Center Coordinator will work 100% of the time in the Prospect Learning Center's Computer Center. Staff who have expressed interest in the program and who are available to serve as an Advisory Committee are the following:

The Art Teacher
The Adaptive Therapy (physical education) Teacher
The Social Worker

The Advisory Committee will function to provide the Computer Literacy Coordinator with assistance in evaluating software and the project design. In addition, the Advisory Committee will work with the Computer Literacy Coordinator to recommend creative applications for instructors and assess the compilation of the evaluation forms for each of the three components.

1. Organizational Chart

```
                 -----------------
                 | The Principal |
                 |               |
                 -----------------
                /| |          |\   \
                 | |            \   \
                 | |/            \   \|
   ---------------------      ------------------------------
   |The Computer Center|      |The Advisory Committee     |
   |   Coordinator     |      |The Art Teacher              |
   ---------------------      |The Social Worker            |
      \|  |\                  |The Adaptive Therapy Teacher |
   ----------------------      ------------------------------
   |Aide to the Computer|
   | Center Coordinator |
   ----------------------
```

2. Job Descriptions

a. The Computer Center Coordinator

Description: The Computer Literacy Coordinator is knowledgeable of the DCPS curriculum and Five Year Plan. In addition, the Computer Literacy Coordinator agrees to complete 50 hours of BASIC and 50 hours of DCPS Sponsored Training sessions designed to assist in the implementation of the Computer Literacy Laboratory.

The Computer Literacy Coordinator will plan, design, redesign, develop and conduct staff development and student workshops and courses of study. For the 1984 - 1985 school year, the Computer Literacy coordinator will implement the computer program described in this manual.

Duties and Responsibilities:

- Attend Takoma Park Computer Literacy Training Laboratory evening sessions.
- Design the Prospect Learning Center's Computer Program with the appropriate input and approval of the principal.
- Implement the Prospect Learning Center's Computer Program, as developed in this manual.
- Provide staff support in their development of computer programs for their classes.
- Maintain a detailed record of Computer Literacy Laboratory use by staff and students (classes and individual students by name)
- Revise the Computer Literacy Program as needed with the consent of the principal and Advisory Board.
- Articulate program needs for software, hardware, space and materials to the Principal.
- Recommend to the principal, appropriate funding sources for software materials.
- Recommending to the principal, books and materials to build a school computer library.

b. Aide to the Computer Center Coordinator

The Aide to the Computer Center Coordinator is knowledgeable of the Prospect Learning Center and is willing to learn how to use the Commodore computer terminals in the center. In addition, the aide is able and willing to follow the directives of the Computer Center Coordinator in working with students. The duties and responsibilities will be assigned on a daily basis by the Computer Center Coordinator.

3. Resumes of Key Personnel

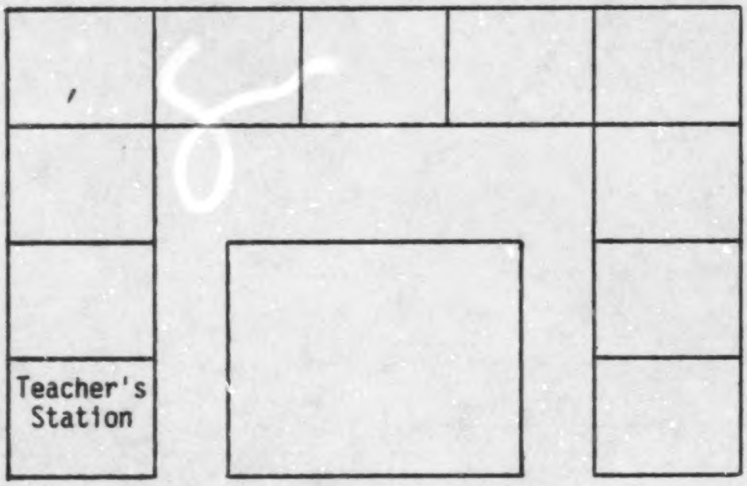
a. The Computer Center Coordinator

b. The Advisory Board Members

c. The Aide to the Computer Center Coordinator

(To be included later)

B. Floor Plan



COMPUTER TRAINING LAB

C. Other Possible Staff Support

In addition to the Advisory Committee, the Computer Literacy Laboratory Coordinator will ask the entire staff for assistance on the following committees:

1. Software Review Committee

The Software Review Committee will consist of staff and one or more parents. The Software Review Committee will examine commercially prepared software during free periods in the Computer Center. The committee members will use a checklist (see appendix) to evaluate the software. Volunteer members need no experience and no expertise. The process for the 1984-1985 school year is a growth experience. Checklists' results from this committee can be compiled as used by the coordinator in making suggestions to the principal for software purchases for the 1985-1986 school year.

2. Library Committee

The Library Committee will consist of staff and one or more parents. The Library Committee will review, evaluate and recommend computer books, journals and periodicals to the coordinator in making suggestions to the principal for the expansion of the library for the 1985-1986 school year.

D. Operational Procedures for the Computer Literacy Laboratory

1. Schedule

The Resource Room (Computer Laboratory) will be open each day from 8:15 - 3:00, unless notified otherwise by the coordinator or program administrator.

The Resource Room (Computer Laboratory) will be open for staff members during planning periods, before the beginning of the school day or after school, when not being used for workshops.

A schedule will be disseminated to staff members so that they will be aware of the daily Computer Laboratory sessions.

2. Security

The Computer Laboratory Coordinator is responsible for the security of all computer equipment. To insure security of the Computer Laboratory equipment, the coordinator must adhere to the following procedures:

The coordinator must always be present when the Resource Room is in use;

The door to the Resource Room will be locked when the coordinator is not in the room;

A sign will be placed on the door to indicate where the coordinator is, if there is any urgency.

Staff members must notify the coordinator when they want to use the resource room when it is not scheduled for use. Teachers may check out books, journals, periodicals or materials for small group activities or personal use by signing the appropriate forms. Students are not allowed in the resource room unless accompanied by the teacher, educational therapist or when the coordinator is present; this prevents any tampering with the computer equipment.

3. Record Keeping

a. The Computer Laboratory Coordinator is required to maintain a detailed record of Computer Laboratory use for record keeping purposes.

i Teachers, educational therapists, and support staff will sign-in on a master sheet available in the laboratory. This sheet will indicate name, time and purpose of visit.

ii When staff members use a computer, they must sign-in.

iii A floor plan will be provided to each teacher by the coordinator to indicate where students will sit, so that an accurate account can be kept of computer use.

b. Student Records

A file will be kept on each student in each class. The file will consist of checklists of activities completed on specific dates. Aides are responsible to assist the coordinator by maintaining the files by a check-off system as the class proceeds.

Advisory Board and Committee Meeting Schedule

TIME	PERSONS INVOLVED	PURPOSE OF MEETING
Sept. 1984	Advisory Committee and Coordinator	Review scheduled program for the year.
October 1984	Software Review Committee and Coordinator	Select software for review and make assignments for the completion of the review.
November 1984	Library Committee and Coordinator	Select books, journals and periodicals and make assignments for the review and recommendation of purchases.
January 1985	Advisory Committee and Coordinator	Overview of the progress toward the completion of objectives for the year.
February 1985	Software Review Committee and Coordinator	Submit checklists of reviews
March 1985	Library Committee and Coordinator	Submit listing of books journals and periodicals for purchase.
April 1985	Advisory Committee and Coordinator	Review year's activities and begin plans for 1985-1986 school year.
May 1985	Advisory Committee, Software Review Committee, Library Committee and Coordinator	Finalize plans for 1985-1986 school year.

SOFTWARE REVIEW CHECKLIST

PART I: General Information

A. Reviewer's Name: ____________________ Review Date: ______________

B. Program Title: ____________________ Copyright Date: ______________
Source: ____________________ Subject Area: ______________
Topic: ____________________ Grade Level: ______________
Estimated Time for Prospect Learning Center student to Complete Program: ______________
Teacher's Guide: ______________ Student Manual: ______________
Peripherals Needed: ______________ Software Warranty: __________
Follow-up Activities: ______________ Pre/Post Test: ______________
Microcomputer (brand, model, memory): ______________________________
Medium (disk, cartridge, tape): ______________________________

The following terms categorize instructional programs by purpose:

a. Drill or practice: Provides practice of concept previously taught.
b. Tutorial: Teaches through dialogue between computer and the student.
c. Simulation: Models of some aspect of the environment.
d. Instructional gaming: Winning strategies applied to teach concepts.
e. Problem-solving: Applies general algorithms common to one or more problems.
f. Informational: Provides data.

PART II: Instructional Applications

(1=appropriate, 2=not appropriate, 3=not applicable) Circle One.

1.	Drill or practice	1	2	3
2.	Tutorial	1	2	3
3.	Simulation	1	2	3
4.	Instructional Gaming	1	2	3
5.	Problem Solving	1	2	3
6.	Informational	1	2	3
7.	Skill Maintenance	1	2	3
8.	Review of Facts	1	2	3
9.	Concept Instruction	1	2	3
10.	Small Group Activity	1	2	3
11.	Large Group Activity	1	2	3
12.	Experimentation	1	2	3
13.	Demonstration	1	2	3
14.	Data Manager	1	2	3

PART III: Program Content

(1=poor, 2=fair, 3=good, 4=exceptional, 5=outstanding)

1.	Content is accurate	1	2	3	4	5
2.	Content has educational value.	1	2	3	4	5
3.	Instructional objectives are stated.	1	2	3	4	5
4.	Instructional objectives are educationally important	1	2	3	4	5

PART IV: Instructional Quality
(1=poor, 2=fair, 3=good, 4=exceptional, 5= outstanding)

1.	Appropriateness of Content for Prospect Learning Center students.	1	2	3	4	5
2.	Appropriateness of example for Prospect Learning Center students.	1	2	3	4	5
3.	Appropriate level of difficulty for Prospect Learning Center students.	1	2	3	4	5
4.	Sequencing of examples/questions.	1	2	3	4	5
5.	Help functions.	1	2	3	4	5
6.	Quality of test items.	1	2	3	4	5
7.	Number of items/questions.	1	2	3	4	5
8.	Use of Review.	1	2	3	4	5
9.	Clearly defined topic.	1	2	3	4	5
10.	Clearly stated objectives	1	2	3	4	5
11.	Appropriate rate of presentation.	1	2	3	4	5

PART V: Software Presentation Quality
(1=poor, 2=fair, 3=good, 4=exceptional, 5= outstanding)

1.	Screen layouts	1	2	3	4	5
2.	Consistency of formats	1	2	3	4	5
3.	Content accuracy	1	2	3	4	5
4.	Directions	1	2	3	4	5
5.	Clarity of format	1	2	3	4	5
6.	Length	1	2	3	4	5
7.	Use of graphics	1	2	3	4	5
8.	Use of sound	1	2	3	4	5
9.	Flexibility	1	2	3	4	5

OVERALL EVALUATION (Please Check One)

__ Excellent program. Recommend.
__ Good Program. Consider purchase.
__ Fair program. Do not recommend purchase.
__ Not Useful. Do not not recommend purchase.

Note: The Prospect Learning Center staff and intern adapted the District of Columbia Public School Computer Literacy Training Laboratory's Principles of Software Review, April 1984, in developing this checklist.

THE PROSPECT LEARNING CENTER
COMPUTER LABORATORY
LIBRARY COMMITTEE'S REVIEW CHECKLIST

Journal Title: ________________________ Reviewer's Name: ________________

Volume, Number Reviewed: ______________ Date: ___________________________

Cost: _________________________________ Intended Audience: ______________

Number of Volumes Published Per Year: ____________________________________

Audience Check All that Apply)

___ Educators (K-12)

___ Educators (Post-secondary)

___ Engineers

___ Computer Programmers

___ Computer Club/Organization Members

___ Computer Technicians

___ General Public

___ Parents

___ Children

Topics Covered (Check All that Apply)

___ Hardware Selection Criteria

___ Hardware Comparisons

___ Hardware Models

___ New Hardware

___ Hardware Accessories

___ Peripherals

___ Computer Industry News

___ Teaching

___ Computer Industry Announcements

___ Software Selection Criteria

___ Software Comparisons

___ Software Reviews

___ New Software

___ Programming Languages

___ Program Administration

___ Ethics and Computers

___ Resource Centers

Please circle the Response which best describes your appraisals of the following statements. (1=Strongly Agree, 2=Agree, 3= Neither Agree nor Disagree, 4=Disagree, 5=Strongly Disagree, NA=Not Applicable.)

1. The journal is useful to educators 1 2 3 4 5 NA
2. Information in the journal can be applicable to the Prospect Learning Center population. 1 2 3 4 5 NA
3. The journal articles are interesting and well written. 1 2 3 4 5 NA
4. The journal articles appear to be helpful to teachers in selecting software. 1 2 3 4 5 NA
5. The journal articles appear to present issues in technology that affect education. 1 2 3 4 5 NA
6. The journal articles present new software. 1 2 3 4 5 NA
7. The journal articles present new hardware. 1 2 3 4 5 NA
8. The journal articles present information in terms educators are familiar with. 1 2 3 4 5 NA
9. The journal reviewed had at least one article/item comparing software and/or hardware and/or materials 1 2 3 4 5 NA
10. The journal is useful to parents. 1 2 3 4 5 NA
11. The journal is worth the price. 1 2 3 4 5 NA
12. The information from this volume can be used for preliminary reading for a workshop on computers. 1 2 3 4 5 NA
13. The journal articles support the goals of the Prospect Learning Center's Computer Program for the 1984-1985 school year. 1 2 3 4 5 NA

Comments: ____
____
____
____
____

Overall Evaluation (Please Check One)

__ Excellent for the educational program at the Prospect Learning Center. Recommend for purchase.
__ Good for the educational program at the Prospect Learning Center. Recommend for possible purchase.
__ Fair for the educational program at the Prospect Learning Center. Recommended for file and listing but not for purchase at this time.
__ Poor. Not recommended for purchase.

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